Waltham Forest Council

Waltham Forest Green and Blue Infrastructure Strategy

Final report
Prepared by LUC
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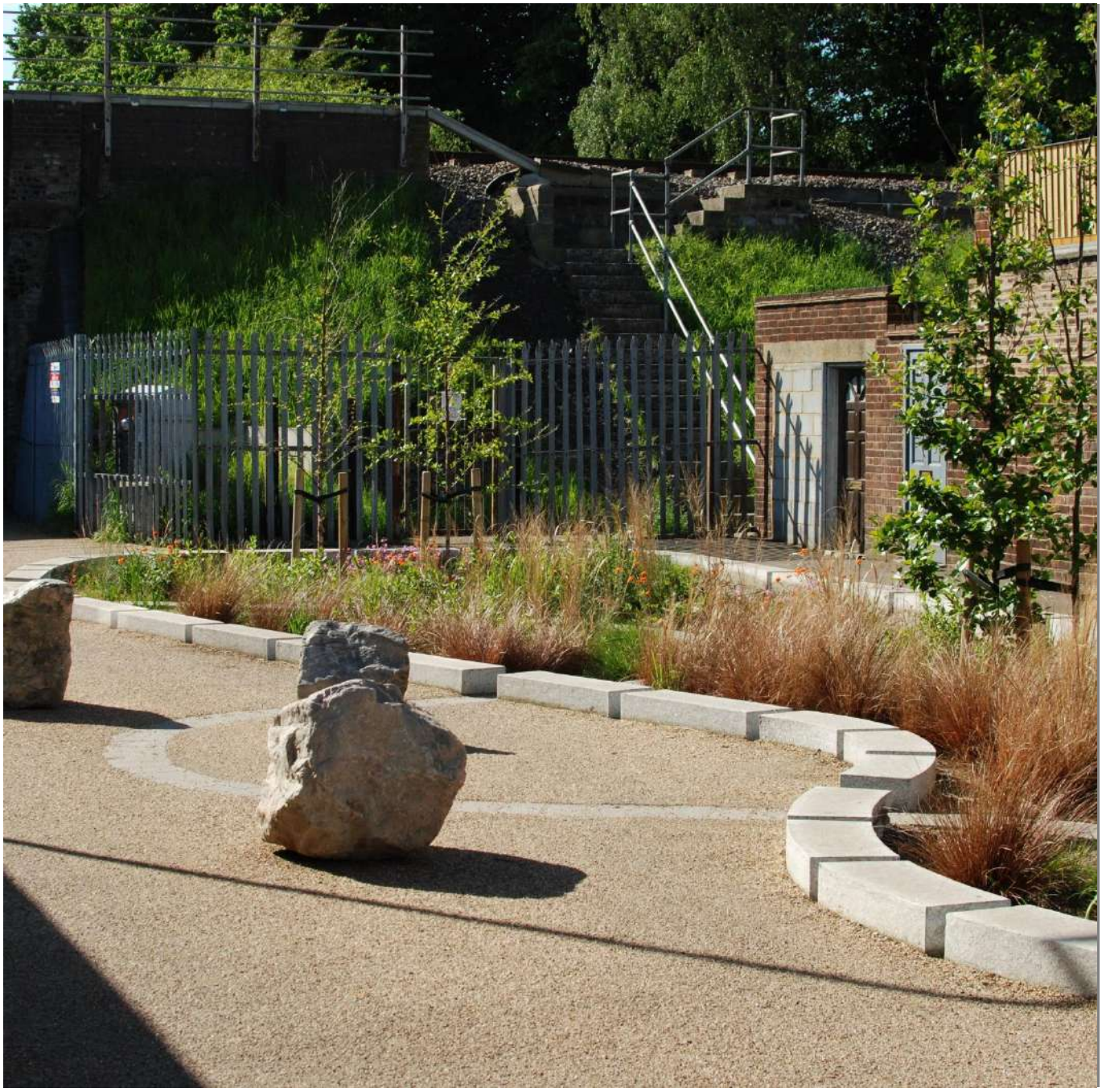

Waltham Forest Council

Waltham Forest
Green and Blue Infrastructure Strategy

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Introduction

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Introduction

What is Green and Blue Infrastructure

1.1 The National Planning Policy Framework (NPPF) 2019 provides the following definitions of Green Infrastructure:

> *'A network of multi-functional green space, urban and rural, which is capable of delivering a wide range of environmental and quality of life benefits for local communities.'* [1]

1.2 The definition within the London Environment Strategy reflects this definition, providing additional detail on the benefits:

> *'London's **green infrastructure** is the network of parks, green spaces, gardens, woodlands, rivers and wetlands (as well as features such as street trees and green roofs) that is planned, designed and managed to:*
>
> - Promote healthier living
> - Lessen the impacts of climate change
> - Improve air quality and water quality
> - Encourage walking and cycling
> - Store carbon
> - Improve biodiversity and ecological resilience[2]

1.3 Waltham Forest's Draft Local Plan[3] embeds the importance of existing and new Green and Blue Infrastructure within both the Five Golden Threads of the Vision '*Ensuring growth is sustainable and supported by infrastructure*' and sets the following Strategic Objective:

> *'11. Enhance the Borough's natural environment and develop a multifunctional network of green and blue infrastructure to deliver benefits for all, including increased public access.'*[4]

1.4 The Draft Local Plan sets out that:

[1] Ministry of Housing, Communities & Local Government (2019) National Planning Policy Framework
[2] Mayor of London (2018) London Environment Strategy
[3] Shaping the Borough - Waltham Forest Draft Local Plan (July 2019) Waltham Forest Council
[4] Shaping the Borough - Waltham Forest Draft Local Plan (July 2019) Waltham Forest Council

'Green Infrastructure is a strategically planned and delivered network of high quality green spaces and other environmental features.'[5]

1.5 Recognition of the multi-functional nature of green and blue infrastructure is of particular importance. When considering any green or blue infrastructure asset, it is likely that several functions will be identified, and several benefits derived. A high quality and value urban park will, for instance, likely provide areas for informal and organised recreation, contribute to the active travel network, provide opportunities for education, space for wildlife, reduce surface water runoff and mitigate against air pollution.

1.6 It is also important to note that green and blue infrastructure can be in public or private ownership and be in any condition. Green and blue infrastructure is essential for maintaining a good quality of life and healthy living environment. It is therefore increasingly understood that green and blue infrastructure must be considered and planned for alongside other forms of infrastructure, such as 'grey' infrastructure. It is also now widely recognised that investment in nature-based solutions for issues that may need to be addressed during growth and development is a viable and beneficial alternative to highly engineered or 'hard' solutions that may have additional costs and not provide multiple benefits.

1.7 In summary this Strategy considers the following types of green and blue infrastructure (section four provides further detail):

- Publicly accessible open spaces such as parks and gardens, and natural and semi-natural sites
- Other types of open space and vegetation which may not be publicly accessible
- Rivers/ watercourses, Sustainable Drainage Systems (SuDS) and bodies of water
- Incidental areas of vegetation within urban areas such as Space Left Over After Planning (SLOAPS)
- Allotments and productive landscapes
- Street trees
- Green/ brown roofs
- Green walls
- Private gardens

1.8 Of particular importance to developing a strategy for green and blue infrastructure is assessing the connectivity and the 'integrity' of the existing network, and where there are gaps and opportunities to strengthen the network. How well connected and permeable the network is can have a major effect on the benefits provided to wildlife and people.

1.9 By identifying the key assets within the borough, this strategy will help to ensure future development is considerate of what makes green and blue infrastructure within Waltham Forest distinctive. The borough's location, sandwiched between two regional parks of significant ecological importance, Epping Forest and Lee Valley, is a distinguished characteristic of the borough. Furthermore, its cultural legacy following the 2012 Olympics and the 2019 London Borough of Culture has played a fundamental role in the improvement of its open spaces.

1.10 The borough has previously benefitted from funding from the London Mayor's Mini-Holland cycling scheme, which has significantly increased opportunities for cycling. The council has built on this success through 'Enjoy Waltham Forest' which aims to make the borough more enjoyable for everybody through several measures including urban greening and the creation of new outdoor space. Both schemes are examples of the potential for good quality green infrastructure in Waltham Forest and should be expanded on in future projects.

The need for a Green and Blue Infrastructure Strategy

1.11 The aim of the Strategy is to provide up-to-date evidence to support Waltham Forest's emerging Local Plan and Infrastructure Delivery Plan. The importance of green and blue infrastructure is reflected within the Local Plan in recognition of the role it plays in creating resilience to climate change through minimising the impact on the natural environment and sustainable development.

1.12 The Strategy will create a coherent approach to enhancing and strengthening the existing green and blue infrastructure network. The Strategy will provide guidance and support for the future delivery and management of open spaces, play provision, biodiversity, climate change resilience, health and well-being, active travel and cultural assets.

1.13 This Strategy works in tandem with Waltham Forest Council's Open Space and Management Strategy (2019), the Open Space Needs Assessment and Review (2018), Biodiversity Action Plan (2010 – 2020) and Pollinator Action Plan (draft, 2020) to guide future planning decisions.

[5] Shaping the Borough - Waltham Forest Draft Local Plan (July 2019) Waltham Forest Council

Structure of the report

1.14 The Strategy is structured as follows.

Section one introduces the Strategy and the methods, provides a definition for green and blue infrastructure and outlines the green and blue infrastructure assets that have been considered.

Section two provides a baseline assessment of the current national, regional and local policy context surrounding green and blue infrastructure. This section also explores the drivers for green and blue infrastructure in the borough under three categories:

- Current population and projection
- Socio-economic context
- Environmental and climate change context

Section three sets out a Strategy for the borough; exploring assets, key considerations and opportunities under six themes:

1. Access and connectivity
2. Biodiversity and conservation
3. Blue infrastructure
4. Open space
5. Urban greening
6. Cultural heritage

Section four sets out how the strategy will be delivered by providing policy recommendations and outlining a framework for ongoing funding and governance.

Approach to the strategy

1.15 Developing the strategy involved three broad stages, which are outlined below:

1. Baseline review
2. Assessment of key considerations and opportunities
3. Developing the vision and setting out green and blue infrastructure principles and delivery recommendations

Stage One: Baseline review

1.16 This stage involved a desktop review of national, regional and local polices, strategies, guidance and other literature that is relevant to developing a Strategy for green and blue infrastructure in the borough. Information was also gathered to build up a picture of the population, demographics and environmental context to help develop an understanding of the drivers for green and blue infrastructure.

Key baseline information reviewed in preparing the strategy:

- All London Green Grid
- London Environment Strategy
- Indices of Multiple Deprivation
- Public Health England Borough Profile
- Waltham Forest Open Space Needs Assessment
- Waltham Forest Consultation Draft Local Plan
- Waltham Forest Air Quality Action Plan
- Waltham Forest Local Flood Risk Management Strategy

Identifying Waltham Forest's Green and Blue Infrastructure Assets

1.17 This stage included identification of the assets in the borough and building up a picture of the existing network. This involved developing a series of green and blue infrastructure types; providing a useful framework to articulate issues and opportunities, and a basis to set out a strategy for strengthening the network.

The following types have been considered during the preparation of the strategy:

- Parks and gardens
- Natural and semi-natural green spaces
- Green corridors
- Outdoor sports facilities
- Amenity greenspace
- Provision for children and teenagers, including space for play
- Allotments, community gardens and city farms
- Cemeteries and churchyards
- River corridors and bodies of water
- Green roofs and walls
- Private gardens

1.18 In order to identify assets within Waltham Forest that sit within these types, several data sets were examined. These are shown in **Appendix A.**

Stage Two: Assessment of key considerations and opportunities

1.19 This stage involved a review of the mapped assets to identify key considerations and opportunities. Key aspects of this stage included:

- Assessing the spatial distribution of green and blue infrastructure assets throughout the borough;
- Reviewing qualitative data on assets to identify issues relating to management aspects, and environmental or development pressures;
- Assessing connectivity of the green and blue infrastructure network; identifying any gaps or deficiencies;
- Identifying any key barriers to access for people and wildlife;
- Identifying the main pressure and threats to the green and blue infrastructure network in Waltham Forest; and
- Cross referencing mapped data with the borough profile and IMD data to identify any priority areas for improvement.

Consultation

1.20 Stage two also included a review of the findings from several key consultation exercises. The relevant findings are outlined in **Table 1.1** below. The findings have been used in the preparation of the strategy, to identify key considerations for green and blue infrastructure and inform the vision, principles and priorities.

Table 1.1: Summary of consultation activities

Consultees	Method	Notes
Public		
Residents/ visitors survey	Online survey promoted through council website, social media and several council facilities.	Online survey undertaken as part of the Open Space Strategy and Management Strategy. The survey focussed on residents and visitors use of open spaces in the borough and priorities in relation to management for biodiversity and recreation within open spaces.
Parks and open spaces friend's groups	Online survey. Directly sent to friend's groups via email.	Online survey undertaken as part of the Open Space Strategy and Management Strategy. The survey focussed on those that are actively involved in managing open spaces in the borough in a voluntary capacity and gathered information on perceived issues/ opportunities and types of activities undertaken.
Internal stakeholders		
Parks and Open Spaces team	Focus group workshop	Workshop meeting attended by key members of the parks and open spaces team. The workshop focussed on management aspects of public open space that is owned and managed by Waltham Forest and working relationships with other groups/ local authorities responsible for managing open spaces in/ around the borough.
Relevant council officers	Workshop	Workshop attended by a range of council officers that have involvement with open spaces and the wider green and blue infrastructure network in their day to day work. The workshop comprised presentations and focus groups to identify open space and GI issues and opportunities.
External stakeholders		
Various environmental groups and statutory bodies	Email consultation	Respondents were asked to identify any issues or opportunities that would be relevant in the preparation of a green and blue infrastructure strategy for the borough, and proposals for future priorities.
Neighbouring authorities	Email and telephone consultation	Consultation focusing on potential cross boundary issues and opportunities, for example access, connectivity, Epping Forest mitigation measures and river corridors.

Stage Three: Developing the vision and setting out green and blue infrastructure principles, priorities and delivery recommendations

1.21 The findings from stages one and two informed the Strategy vision and subsequent development of the principles and priorities for green and blue infrastructure in the borough. The findings from the baseline policy and strategy review enabled the formulation of delivery and policy recommendations that are relevant to the context of Waltham Forest. The proposed principles, priorities and delivery mechanisms reflect the key considerations, issues and opportunities within Waltham Forest and the wider London region, and recognise the role that the borough should play in ensuring a healthy, accessible network for wildlife and people.

Chapter 2

Context

Chapter 2
Policy context

2.1 The following section provides a review of national, London (regional) and local planning policy.

National Policy

2.2 The National Planning Policy Framework, 2019 (NPPF) recognises the importance of protecting, planning for and delivering green and blue infrastructure and provides the overarching rationale for the strategy.

2.3 Paragraph 20 of NPPF sets out that *'Strategic policies should set out an overall strategy for the pattern, scale and quality of development, and make sufficient provision for… conservation and enhancement of the natural, built and historic environment, including landscapes and green infrastructure and planning measures to address climate change mitigation and adaptation.'*

2.4 Paragraph 91 is aimed at creating healthy, inclusive and safe communities and places; and highlights several possible means to achieving this including providing accessible green infrastructure, sports facilities and high quality public space.

2.5 Paragraph 92 states that *'to provide the social, recreational and cultural facilities the community needs, planning policies and decisions should: plan positively for the provision and use of shared spaces, community facilities (including sports venues and open space) and other local services to enhance the sustainability of communities and residential environments.'*

2.6 Paragraph 96 requires planning policies to be based on *'robust and up-to-date assessments of the need for open space, sport and recreation facilities (including quantitative or qualitative deficits or surpluses) and opportunities for new provision.'* **Paragraphs 99, 100** and **101** describes the Local Green Space designation requirements and the level of protection that should be afforded to this type of designation.

2.7 Paragraph 150 requires that new development should be planned to avoid increased vulnerability from the effects of climate change. In vulnerable areas, risks should be managed through suitable adaptation measures, including through the provision of green infrastructure.

2.8 Paragraph 171 highlights the need to take a strategic approach to maintaining and enhancing networks of habitats, and recognises the value of a catchment or landscape scale approach.

2.9 Paragraph 181 relates to the management of air quality, stating that *'Opportunities to improve air quality or mitigate impacts should be identified'* including through *'green infrastructure provision and enhancement.'* It continues that, as far as possible, provision and enhancement should be considered at plan making stage.

Planning Practice Guidance

2.10 Planning Practice Guidance relating to the natural environment[6] recognises the need for a strategic approach to green infrastructure and encourages the preparation of borough-wide green infrastructure strategies or frameworks. The guidance clearly states that an evidence-based approach should be employed which includes an assessment of current provision, gaps in the network, and opportunities for improvement; recognising the need to address cross boundary issues. Where appropriate, supplementary guidance may set out how green infrastructure will be delivered, including through infrastructure delivery plans, Community Infrastructure Levy (CIL) schedules, S106/ Planning Obligations guidance, or Infrastructure Funding Statement (IFS) where applicable.

A Green Future: Our 25 Year Plan to Improve the Environment

2.11 The 25 Year Environment Plan (2018) sets out the government's approach to protecting the environment and recognises the social, economic and environmental benefits of the provision of green infrastructure. The plan sets out commitments to *'green our towns and cities by creating green infrastructure and planting one million urban trees'* and *'producing stronger new standards for green infrastructure.'*

2.12 The Plan highlights the general social benefits of access to greenspace and commits to further incorporate access to the natural environment into local Health and Well-being Board strategies. Under the Goal of *'Enhancing beauty, heritage and the natural environment'*, the Plan states that action will include: *'Making sure that there are high quality, accessible, natural spaces close to where people live and work, particularly in urban areas, and encouraging more people to spend time in them to benefit their health and well-being'*[7]. When given Royal Assent, the **Environment (Principles and Governance) Bill** will give the 25 Year Environment Plan Statutory status and support the delivery of the Government's manifesto commitments relating to the environment[8].

Regional Policy

London Plan

2.13 The London Plan is the overall strategic plan to guide growth and development in London and brings together the spatial aspects of the Mayor's other strategies, including transport, culture and environmental considerations. Each of the London boroughs' local development documents have to conform with the London Plan.

2.14 Policy 2.18 Green Infrastructure: The Multi-Functional Network of Green and Open Spaces, requires that Local Plan preparation supports the creation, protection and enhancement of green infrastructure and open spaces which include linking local Biodiversity Action Plans (BAPs) to these strategies. This policy sets out the importance of optimising open spaces for both their environmental and social qualities.

2.15 Policy 7.18 Protecting Open Space and Addressing Deficiency, relates to the protection and creation of open spaces. Areas that are deficient in open space should be identified and new open space should be provided in areas that are likely to experience substantial housing growth. Open spaces can only be lost if an equal or better open space can be provided elsewhere within the local catchment area. This policy also requires that local *authorities 'ensure that open space needs are planned in accordance with green infrastructure strategies to deliver multiple benefits.*[9]*'* The London Plan has also established a hierarchy for public open space, which is related to size, and sets out accessibility standards, based on distance thresholds that are used to assess areas of the capital that have deficiencies in open space provision.

2.16 The strategic objective of **Policy 3.6** Children and Young People's Play and Informal Recreation Facilities is to ensure that children and young people have access to high quality recreational facilities which includes trees and greenery wherever possible.

2.17 Policy 3.19 Sports Facilities, requires that the Local Plan process should assess the need for sports and recreation facilities in line with the NPPF at the local and sub-regional levels regularly, and that sites should be secured for a range of sports facilities.

2.18 Policy 7.1 Lifetime Neighbourhoods Policy, encourages local authorities to take steps to develop resilient neighbourhoods, including through providing access to community infrastructure and open spaces.

[6] Ministry of Housing, Communities & Local Government (2016) Planning Practice Guidance: Natural Environment
[7] HM Government (2018) A Green Future: Our 25 Year Plan to Improve the Environment
[8] DEFRA (2018) Draft Environment (Principles and Governance) Bill: Statement of Impacts
[9] Mayor of London (2016) The London Plan

2.19 Policy 7.19 Biodiversity and Access to Nature, requires that a proactive approach is taken to the enhancement, creation, promotion and management of biodiversity during development.

2.20 The protection of trees and woodland is covered under **Policy 7.21** which requires that existing trees are maintained and preserved, and that trees lost to development should be replaced. The policy also sets out the importance of producing a Borough Tree Strategy.

New London Plan

2.21 The emerging new London Plan was at the stage of intention to publish in December 2019, after being issued for consultation in 2017. An Examination in Public (EiP) was held until May 2019, subjecting the plan to amendments made in response to representations and issues raised. Final publication is due in mid-2020, following the incorporation of the Secretary of State's response, however the Draft London Plan is a material consideration in planning decisions. This strategy therefore refers to relevant policies from the latest version of the new London Plan which includes suggested changes following the EiP, which was published in December 2019.

2.22 The new London Plan sets a ten-year net housing completion target for Waltham Forest of 12,640 (2019/20 to 2028/29), with a target of 3,590 on small sites. The Mayor has identified 30 Housing Zones across the Capital which will bring accelerated housing development within areas with high potential for growth. The building of homes within these areas will be supported by several funding and planning measures made available by the London Mayor and central government. Blackhorse Lane and Northern Olympic Park Housing Zone in the south west of Waltham Forest covers approximately 950 hectares and is set to deliver 2,608 homes. Funding provided will also benefit the zones and London as a whole, through additional infrastructure, open space and other local amenities. Green infrastructure will therefore play a vital role in supporting existing and new communities in an area that is facing significant growth.

2.23 Policy GG2 Making the best use of land, sets out that planning and development must '*protect and enhance London's Open Spaces including Green Belt, Metropolitan Open Land, designated conservation sites and local spaces and promote the creation of new green infrastructure and urban greening, including aiming to secure net biodiversity gains where possible*' in order to create a healthy city for people and wildlife, and tackle health inequality.

2.24 Policy GG3 Creating a healthy city set out to improve health through planning and delivering *'improved access to and quality of green spaces, and the provision of new green infrastructure, and spaces for play, recreation and sports.'*

2.25 Policy S1 Developing London's social infrastructure highlights the importance of green infrastructure as a key component of social infrastructure and its contribution to quality of life, which is covered in more detail in Policies G3 and G4.

2.26 Policy S3 defines the requirements for school and colleges to provide sports, play and training facilities for community use outside their main operating hours. It also sets out that shared use can be increased further by locating schools and colleges next to parks and open spaces and within mixed use developments.

2.27 Policy S4 Play and informal recreation, requires that local authorities undertake a needs assessment relating to open space, as well as audits of existing play and informal recreation provision. This policy promotes the production of borough play and informal recreation strategies, supported by Development Plan policies which are informed by needs assessments.

2.28 Policy S5 Sports and recreation facilities requires that boroughs regularly assess the need for these facilities at the local and sub-regional level, to ensure that there is an adequate supply of high-quality sports and recreation facilities. Sites should be secured to allow for a range of sports and recreation facilities, as well maintaining, promoting and enhancing the Walk London Network.

2.29 Policy G1 Green infrastructure should be planned, designed and managed in a way which delivers multiple benefits. The plan recognises that the city's green and blue spaces creates a network, including street trees, green roofs and other major assets such as natural or semi-natural drainage features, which should be considered as an integral part of all development, and not just an 'add-on'. Its economic and social value is recognised within the London i-Tree assessment and the Natural Capital Account for London's Public Parks. The new London Plan also highlights the importance of boroughs preparing their own green infrastructure strategies to act as an evidence base for Development Plans.

2.30 Policy G2 London's Green Belt should continue to be protected for its multiple benefits, including combating the urban heat island, growing food and providing space for recreation. Derelict sites may still be making positive contributions to biodiversity, flood prevention and climate resilience. Enhancement and extension of the Green Belt will be supported where appropriate.

2.31 Policy G3 Metropolitan Open Land (MOL) protects existing designated MOL from inappropriate development. It encourages the designation of new MOL areas where the land contains facilities for leisure, recreation, sport, arts and/ or cultural activities; contains historical, recreational biodiverse

features or landscapes of regional or national value; or forms part of a strategic corridor, node or link in the green infrastructure network. It supports the extension of existing MOL and identifies the need to improve access and quality.

2.32 Policy G4 Open Space, stresses that open spaces are a vital component in London's infrastructure and requires that a needs assessment of open space should inform policy, identify areas of deficiency and address any deficiencies based on need.

2.33 Policy G5 Urban Greening, states that in order to ensure an increase in green cover, boroughs should develop an Urban Greening Factor (UGF) to identify an appropriate amount of urban greening required in new developments. The UGF will initially apply to major applications, but may eventually be applied to applications below the threshold as boroughs develop their own models. The policy sets out elements that may be considered 'urban greening' (i.e. trees, green/ brown roofs etc.), the factors for each and the formula for calculating the final 'score' of a proposal[10]. The draft plan recommends target scores for different types of development.

2.34 Policy G6 Biodiversity and access to nature, emphasises the identification, protection and conservation of Sites of Importance for Nature Conservation (SINC), other ecological networks and priority species, with focus on habitat creation and enhancement. Secondly, it sets the requirement to identify deficiencies in access to nature (more than 1km walking distance from a Metropolitan or Borough SINC) and seek opportunities to address them. The policy emphasises the importance of the range of habitats that London has to offer including green corridors, and recognises the pressure these face due to London's projected growth. It therefore requires development proposals to be developed with habitat connectivity, sustainable access to habitat, and biodiversity at the start of the process, with the aim of achieving net biodiversity gain, reducing habitat severance and access deficiencies.

2.35 Policy G7 Trees and woodlands highlights the role that London's urban forest and tree cover plays in green infrastructure of the city, stating that they should be protected, maintained and planted. It refers to the London Tree and Woodland Framework and the requirement for Local Authorities to produce tree strategies to inform the management of urban woodland and trees, as well as green infrastructure strategies. It continues to confer additional requirements on Local Authorities to protect veteran and ancient woodland, as well as identify opportunities for strategic planting areas. It also requires development proposals to retain existing trees and provide additional tree planting from the outset of design development, evidenced through valuation systems such as i-Tree Eco or CAVAT for example.

2.36 Policy G8 Food growing addressed the protection of existing allotments and encourages the creation of new sites and areas for community growing, including for food growing within new developments, or as meanwhile use on vacant or underused land. It encourages incorporation of a variety of community growing areas and types, including within community schemes such as schools.

2.37 Policy SI14 Waterways – strategic role, defines the network of linked waterways across London, the Blue Ribbon Network, as multifunctional assets and their importance, for example, as part of green infrastructure, diverse and important habitats and recreation corridors.

2.38 Policy SI16 Waterways – use and enjoyment requires developments to consider the protection and other uses of the waterways in the enhancement and provision of water-related cultural, educational and community facilities. This includes the requirement to protect and enhance public access to waterways and explore opportunities for extended, improved and inclusive access infrastructure, including walking routes and connections to the wider transport network.

2.39 Policy SI17 Protecting and enhancing London's waterways addresses the protection of water spaces recognising their habitat value and importance for recreation and amenity, with priority for improving and restoring them, with future management, biodiversity and accessibility in mind.

London Environment Strategy

2.40 The London Environment Strategy provides details on how the Mayor will address the protection and improvement of the environment in London in the future, with the following six aims leading to outcomes of London becoming greener, cleaner and ready for the future by 2050:

1. Zero carbon city – energy efficient buildings, transport and energy;
2. Zero waste city – no biodegradable/ recyclable waste sent to landfill by 2026;
3. Adapted and resilient – climate change including flooding, heat waves and drought;
4. Green Infrastructure – the world's first National Park City;
5. Air Quality – best air quality of any major world city by 2050; and
6. Noise – improved quality of life through promoting quiet and tranquil spaces.

[10] Mayor of London (2019) Draft New London Plan: Policy G5

2.41 The Strategy contains the aim for London to be the world's first National Park City, in which more than half of the city's area is green. This status was adopted on 22nd July 2019, with the vision for the city being one where new growth helps to improve the quality and function of London's green infrastructure. This will allow for a greener, more connected, wildlife rich city with a high quality and protected core network of parks and green spaces. This designation will aid protection of the natural environment, and appropriate management of the network of green infrastructure to benefit all sectors of London's population[11].

Natural Capital: Investing in a Green Infrastructure for a Future London

2.42 The report prepared by the London Green Infrastructure Task Force states that the incorporation of green infrastructure within the city should be used to achieve five objectives relating to; healthy living, adaptation to promote resilient places (i.e. through flood risk mitigation), promotion of living landscapes, and improving access to outdoor spaces for cultural and social uses. The report also calls for the boroughs to be place makers in which green infrastructure is central to the agenda[12].

All London Green Grid (ALGG)

2.43 The All London Green Grid (ALGG) has been developed as Supplementary Planning Guidance (SPG) to the London Plan. The aim of the SPG is to help deliver a strategic network of high quality green infrastructure across London; maximising the environmental and quality of life benefits that can be derived from open space and green infrastructure. The ALGG is supported by eleven Area Frameworks across Greater London. The Area Frameworks cross administrative boundaries and identify strategic opportunities and site-specific projects that would ensure the delivery of the ALGG objectives at a landscape scale.

2.44 Areas of Waltham Forest are included within Area Framework One: 'Lea Valley and Finchley Ridge', and Area Framework two: 'Epping Forest and River Roding'. Project opportunities are identified for Waltham Forest within both Area Frameworks, several of which have either already been delivered or partially delivered.

2.45 Project opportunities within Area Framework One include the creation of Walthamstow Wetlands, improved connections between existing open spaces, and improvements to River Ching Walk and Cheney Row Recreation Ground. Within Area Framework Two opportunities include improving and linking Waltham Forest, Redbridge, and Barking & Dagenham's 'lost rivers' north to Essex and south to the Thames; and improving east to west connections, linking Waltham Forest with the surrounding boroughs via tree lined streets, cycle routes and the existing network of parks.

London National Park City

In July 2019, London was declared the world's first National Park City. The concept behind the National Park City movement is to encourage individuals and public bodies to contribute towards making London 'greener, healthier and wilder' as set out in the London National Park City Charter.

Ambitions for London as a National Park City is that it will be:

- a city which is greener in the long-term than it is today and where people and nature are better connected;
- a city which protects the core network of parks and green spaces and where buildings and public spaces aren't defined only by stone, brick, concrete, glass and steel;
- a city that is rich with wildlife where every child benefits from exploring, playing and learning outdoors; and
- a city where all can enjoy high-quality green spaces, clean air, clean waterways and where more people choose to walk and cycle.[13]

Opportunity Area Planning Frameworks (OAPF)

2.46 The Mayor of London has designated multiple OAPF areas to set the vision and guide the evolution of London over time. The OAPF for each area provide supplementary guidance to the London Plan, providing priorities and strategic spatial planning approach for the area. There are two areas which fall within Waltham Forest.

Upper Lea Valley Opportunity Area Planning Framework (OAPF)[14]

2.47 Upper Lea Valley OAPF covers a small portion of the eastern part of Waltham Forest. As well as setting vision and development principles that apply to the whole framework area, it also identifies growth areas, one of which, Blackhorse Lane, falls within Waltham Forest and is intended to become a new neighbourhood centre. In line with making the most of the existing assets within the area, two of the Framework objectives are relevant to this Strategy.

[11] Mayor of London (2018) London Environment Strategy
[12] Green Infrastructure Task Force (2015) Natural Capital: Investing in a Green Infrastructure for a Future London
[13] http://www.nationalparkcity.london
[14] Mayor of London (2013). Upper Lea Valley Opportunity Area Framework

- Invest and improve networks to help people walk and cycle more easily through the area.
- Open up the Lee Valley Regional park with a fully accessible network of green and blue spaces for the benefit of people and wildlife,

2.48 Vision for transport in the OAPF, in line with the Mayors Transport Strategy:

- Support growth through establishing excellent connectivity
- Foster culture of cycling and walking through improved infrastructure, public realm and air quality
- Support green infrastructure encouraging a shift from travelling by private vehicle and reducing transport contribution to climate change
- Create attractive walking and cycling connections, including the strategic role of connection to the Lee Valley Regional Park

2.49 Urban Design in the OAPF is focused on making the most of the Lee Valley Regional Park, highlighting that this key asset is '*a gem that is often not visible*', with access and views often restricted. The key green space connection and opportunity is highlighted as 'Blackhorse Lane Linear Park' to improve links to Walthamstow Wetlands and Lee Valley Regional Park.

2.50 The OAPF defines the following three design principles and a suite of strategies for the area which have been developed from the document 'From Edge to Common Ground: Upper Lee Valley Landscape Strategy' (2010), Witherford Watson Mann Architects, formulating strategic landscape projects across the area. It focuses on creating an interlinked and accessible network of green infrastructure across the area.

- Forming a single valley space
- Making many ways in and through the Park
- Connecting to existing communities

2.51 The OAPF focuses on development by the waterways due to the amount of water in the area from the River Lee and River Lee Navigation, reservoirs, flood relief channel and other tributaries. The OAPF therefore sets three objectives in line with the Blue Ribbon Network, which contributes to the objectives for nature conservation:

- Maximise waterfront locations, increase attractiveness and connectivity
- Restore waterways for ecology amenity and flood risk reduction, including naturalisation for open space creation
- Protect and enhance for the benefit of nature conservation including suitable accessible natural greenspace

Lower Lea Valley OAPF[15]

2.52 The Greater London Authority designated the Lower Lea Valley as an Opportunity Area, which covers a small part of southern Waltham Forest. The Framework provides strategic planning guidance, defining an overarching vision and development principles that apply to the area, and focusing on borough wide issues, opportunities and land use scenarios.

2.53 This Framework sets out development principles through strategic themes:

- Water – Develop the Blue Ribbon Network to realise the potential of waterways and open spaces to create amazing places with flood resilience, connectivity, biodiversity and enhanced landscape character – Potential for new open space to 'break out' river edges
- Green space – to follow the strategic objectives of the All London Green Grid for Lee Valley – Potential for existing retained and new green spaces
- Places of Exchange – protect and improve existing green infrastructure assets and provide additional to meet need – Community and health facilities would benefit
- Housing – Deliver infrastructure to support housing areas – support needs of people living in existing housing areas
- Local Movement – Reduce physical severance and increase connectivity – Provide new 'Green Routes' pedestrian and or cycle routes

Sub-Regional Policy

Lee Valley Regional Park (LVRP)

2.54 The Lee Valley Regional Park falls partially within the London Borough of Waltham Forest and covers approximately 10,000 acres following the course of the River Lea through east London along the Lea Valley from the East India Dock Basin on the River Thames to Ware in Hertfordshire.

2.55 Lee Valley Regional Park Authority is the statutory body responsible for managing and developing the park. The Authority is overseen by a board of 28 members, a percentage

[15] Mayor of London (2007). Lower Lea Valley Opportunity Area Framework

of which are appointed from the surrounding local authorities, including one from Waltham Forest.

Lee Valley Regional Park Development Framework

2.56 The LVRP Authority adopted new Strategic Policies[16] which replace those included in Part One of the Park Plan (2000) and form part of the Park Development Framework. The Authority is applying the policies to guide development and land use change within and adjacent to the Park in collaboration with the Riparian Authorities. The policies seek to provide greater certainty for developers and landowners and help the Authority in its role as a statutory consultee on development plans and planning applications. The policies also inform the Area Proposals for the Park and any development within or outside areas put forward by the Authority itself.

2.57 The vision for the Park is to be '*a world class leisure destination*'. The policies seek to improve the quality and accessibility of the park and its wider setting, creating a place for leisure, recreation, sport and nature. It is hoped that the park can develop further as a centre for sporting excellence, following the 2012 Olympic legacy. This will be balanced with enhancing the Park's biodiversity, mitigating future climate change and managing the impacts of past land uses.

2.58 Relevant strategic aims and the new policies are set out below. These draw on the evidence base and the spatial portrait and are designed to address the key challenges, manage development pressures and realise opportunities to enhance the Park.

- Conserve and enhance the Park's biodiversity
  - Policy B1 – development to be consistent with biodiversity metric
  - Policy B3 – provide areas for biodiversity offsetting within the park for proposed development schemes outside the park
- Protect and make best use of the Park's water spaces.
  - Policy W1 – protect existing waterbodies for recreation and biodiversity
  - Policy W2 – encourage recreational use of water spaces
- Influence development within and adjacent to the Park to ensure that the Park is protected and enhanced
  - Policy D2 – Ensure that development proposed within the Park is of the highest environmental standards
  - Policy D3 – Ensure the design and layout of new development within and adjacent to the park enhances the park and avoids detrimental impacts on ecological assets, and provides sufficient quantity open spaces
  - Policy D4 – Explore opportunities to designate sites within the Park to allow access to natural green space designed to offset adverse impacts of new development on the Epping Forest SAC
- Improve accessibility and entrances to the Park for pedestrians, cyclists and via public transport
  - Policy A1 – Enhance existing and create new entrances to the Park
  - Policy A2 – Create pedestrian and cycle bridges and crossing points to reduce the severance caused by linear infrastructure
  - Policy A3 – Improve access and integration to secure physical links and green corridors to surrounding parks, open spaces and other points of interest
  - Policy A4 – Improve sustainable transport links within the Park
  - Policy A5 – Improve access to and movement within the Park through enhanced signage and way finding
  - Policy A6 – Enable access to the Park by all communities to respond to the diversity of need
- Protect and enhance the Park's contribution to reducing and managing flood risk
  - Policy FR2: Mitigate and reduce flood risk to the surrounding areas using natural flood management and sustainable drainage systems within the Park
  - FR3: Promote green infrastructure to increase the ability of the Park and the surrounding areas to adapt to climate change

2.59 The Lee Valley Regional Park Landscape Character Assessment and Strategy document forms part of the evidence base for the Park Development Framework and supports the Strategic Policies. This defines the landscape character of the Park and the overarching strategy for each of the character areas, to protect and manage the landscape and guide change. There are several common themes relevant to this study which are outlined below. Strategic moves have been incorporated within this Green and Blue Infrastructure Strategy to present a comprehensive approach.

[16] Lee Valley Regional Park Authority (2019). Lee Valley Park Development Framework, Park Development Plan, Strategic Policies

- Maintain and enhance connections to the Lee Valley, with opportunities for improving recreational links.
- Enhance biodiversity of remaining undeveloped land on the edges of the Park.
- Retain and strengthen important wildlife corridors.
- Increase and improve access through and across the Lee Valley to the surrounding communities.
- Link to open spaces to enable access between the different parts of the Lee Valley which are currently severed from one another.
- Enhance enjoyment of and connection to the landscape for both formal and informal recreation.
- Conserve local food growing areas.
- Reduce barriers to access through enhanced and proposed pedestrian and cycle routes.
- Sensitive design of existing and new entrance points and increased quality of the network of routes including wayfinding initiatives.
- Expand and connect fragmented and marginalised habitats such as marshland, wetlands, woodlands and meadows and introduce naturalised water channels and sustainable drainage.
- Maintain framework of mature trees end ensure that the continue to provide separation between the park and adjacent urban areas.
- Introduce tree and structural landscape planting to link habitats and different developments.
- Maintain and enhance the quality of watercourses, improving their functions as wildlife corridors and recreational spaces.
- Continue positive management of the woodland margins, meadows and waterways, enhancing the habitat value and connectivity balancing against aesthetic and access for recreation and enabling the enjoyment of the landscape.
- Increase the diversity of vegetation and habitats through tree planting, understorey planting and diversifying grass communities on the edges of playing pitches and amenity grassland.

2.60 The Park Development Framework details specific Area Proposals which include maintaining a high-quality space for sports and recreation facilities and encouraging use by the local community. The northern tip of Area 1 (Tidal Reaches to Queen Elizabeth Olympic Park), the north of Area 2 (The Three Marshes: Walthamstow, Leyton and Hackney), Area 3 (The Waterlands: Walthamstow Wetlands to Tottenham Marshes), and the south of Area 4 (The Waterlands: Banbury Reservoir to Pickett's Lock) are all relevant to the borough[17]. Some proposed projects relevant to green and blue infrastructure include:

- Research options for using the Marshes to provide flood storage capacity.
- Protect, restore and manage the Walthamstow Marsh Nature Reserve and SSSI.
- Develop new pedestrian and cycle routes through existing industrial areas.
- Explore opportunities to open up pedestrian access alongside the Flood Relief Channel with the Environment Agency.
- Improve pedestrian and cycle access along Coppermill Lane, Lea Bridge Road, Lee Valley pathway, Black Path and Ferry Lane/ Forest Road.
- Create an urban wetland nature reserve at Walthamstow Reservoirs.
- Refurbish the Thames Water Marine Engine House off Forest Road to create a visitor centre and education resource.
- Improve biodiversity along margins of sites through relaxed mowing regimes.
- Develop a linear waterside park around Banbury Reservoir including link to Tottenham Marshes.

Local Policy

Waltham Forest Core Strategy

2.61 The Waltham Forest Core Strategy was adopted in March 2012. **Policy CS5** (Enhancing Green Infrastructure and Biodiversity) indicates that the Council will endeavour to protect and enhance green infrastructure and biodiversity and to maximise access:

- to open spaces across the Borough by improving the quality of, and access to, open spaces especially in areas of deficiency; and
- ensuring the adequate provision and efficient use of allotments and other spaces on which to grow food and plants.

[17] Lee Valley Regional Park authority (2013) Park Development Framework: Area 3 Proposals

2.62 Policy CS13 Promoting Health and Well-being outlines the Council's aim to create and develop healthy and sustainable places and communities by:

- improving both pedestrian and cycle access to green and open spaces, particularly the Olympic Park, Lee Valley Regional Park and Epping Forest; and
- improving access to the Borough's health services and leisure, sports and recreation facilities, whilst ensuring they are accessible by all[18].

Waltham Forest Local Plan[19]

2.63 Waltham Forest is developing a new Local Plan which will shape growth and development in the borough over a 15-year period, between 2020 and 2035. The emerging new Local Plan will replace the current Core Strategy, Development Management Policies and Area Action Plans, to create a single document supported by Supplementary Planning Documents. Consultation on a draft of the Local Plan was carried out until the end of September 2019, with hopes for it to be adopted in the Summer of 2021.

2.64 The consultation draft of the Local Plan recognises the importance of infrastructure to support the community, which is detailed through the strategic objective to *'enhance the Borough's natural environment and develop a multi-functional network of green and blue infrastructure to deliver benefits to all, including increased public access'*[20] highlighting the value of Waltham Forest's existing open spaces.

2.65 The Local Plan calculates the need for development in Waltham Forest, based on the forecasted London Plan figures, to be 27,000 additional homes and 46,000sqm employment land. As part of this growth, under **Policy 2** it is expected that supporting green infrastructure will be provided in line with the scale of growth to meet need within the Borough itself. It reinforces the need to provide social and physical supporting infrastructure to support development through timely delivery, with recognition that developer contribution will remain an important mechanism to deliver infrastructure where shortfalls occur on development sites.

2.66 Ensuring good growth, **Policy 4**, requires developments to satisfy a number of requirements, including the following which are relevant to this study: '*B. Contribute to improving and enabling healthier lifestyles (Policy 13 'Promoting Health and Well-being'); E. Support the creation of successful neighbourhood communities, the provision of adequate social and physical infrastructure (12 'Social and Community Infrastructure'); F. Incorporate high quality design solutions and contribute positively to the quality of the physical environment (14 'Creating High Quality Places'); G. Contribute to the response to climate change, through mitigation and adaptation, the use of sustainable building materials, low carbon heating and energy efficiency (18 'Ensuring Climate Change Resilience'); H. Protect and enhance existing green and blue infrastructure, including open space and leisure facilities, biodiversity and nature conservation (Chapter 17 – 17 'Protecting and Enhancing the Environment'); and J. Protect heritage assets including Conservation areas and Listed buildings (16 'Enhancing and Preserving our Heritage')'.* This policy is reinforced by many other policies within the emerging plan that creating the overall aim for high quality sustainable development ensuring a resilient built environment. It continues *'All future development will need to be supported by suitable social, green and blue infrastructure of all types and set within environments that reflect the rich, diverse culture, character and history of the borough. This will involve making the best use of existing infrastructure as well as significant investment for the provision of new and improved infrastructure. … Schools, health care facilities, shops and other services need to be available in accessible locations along with parks, sports facilities and well-maintained local public open space, forming part of a wider 'green infrastructure network' threading through the Borough to adjoining Boroughs and linking to the open countryside and Epping Forest beyond.'*

2.67 The Local Plan takes a spatial approach to polices and divides the borough into three areas, reflecting the diversity and varying challenges facing these areas. Strategic locations are then defined within these three areas with **Policies 6-12** covering South Waltham Forest, **Policies 13-16** covering Central Waltham Forest and **Policies 17-22** covering North Waltham Forest. These policies have a common thread running through them in relation to green infrastructure, defining that proposals will be supported if they support the delivery of sustainable neighbourhoods through the provision of social and community infrastructure; contribute to the delivery of permeable, inclusive connectivity and accessible streets; improve cycling and pedestrian connectivity and new links throughout the area including to open spaces; deliver sustainable urban drainage systems; protect and enhance the significance of Epping Forest; take advantage of existing green assets; and enhance the gateway locations through public realm enhancements.

2.68 The following policies are proposed under the theme of *Protecting and Enhancing our Environment*:

- **Policy 79** Green Infrastructure and the Natural Environment – Preservation and enhancement of green

[18] Waltham Forest Council (2012) Waltham Forest Local Plan: Core Strategy
[19] Shaping the borough: Waltham Forest Local Plan 2020-2035, proposed submission document (Regulation 19) (October 2020)
[20] Waltham Forest Council (2019) Shaping the Borough: Draft Local Plan 2020-2035

and blue infrastructure and access to open space will be ensured by; protection of the Green Belt (GB) and Metropolitan Open Land (MOL); improving access for pedestrians and cyclists; provision of high quality and useable open space/and or landscape within major new development, or financial contributions where this cannot be delivered; and provisions for long term maintenance for new adopted and non-adopted areas of open space as a requirement of planning permission.

- **Policy 80** Parks open spaces and recreation – The policy sets out the need to ensure adequate provision, protection and enhancement and quality of play and recreation spaces, indoor and outdoor sports facilities and parks for all sections and groups of the community. Management, planning and provision of playing pitches and open spaces will be in accordance with the borough's Playing Pitch Strategy and Parks and Open Spaces Strategy. Residential and mixed-use proposals will be expected to contribute to the provision of high quality and accessible exercise, play and recreational facilities either on or off site.
- **Policy 81** – Biodiversity and geodiversity - Proposals should seek to protect and enhance biodiversity and geodiversity resources in the borough and link into the wider green infrastructure network. Proposals will not normally be granted permission where they pose adverse direct or indirect effects on international, national, regional and locally designated sites (Including SSSI, SINC, SAC, Ramsar and SPA sites). Appropriate mitigation measures will be put in place where needed (in the case of SAC and SPA sites).
- **Policy 82** Trees – Sets out the requirements for the protection for trees during development. Including: protecting and retain significant existing trees; positively integrating retained trees as part of well-considered, sustainable soft landscaping schemes; provision of appropriate mitigation where the removal of significant trees is deemed justified.
- **Policy 83** The Epping Forest and the Epping Forest Special Area of Conservation - The Council will protect and enhance the natural environment of the Epping Forest and its Special Area of Conservation (SAC) and seek to ensure that development proposals contribute to the mitigation of adverse recreational and air quality effects on the SAC. Development applications within 500m of the SAC will not be granted unless they can demonstrate through a project level HRA that the development will not generate adverse urban effects on the integrity of the SAC.

Epping Forest SAC Mitigation

A Zone of Recreational Influence (ZOI) for Epping Forest has been established following extensive visitor surveys, which includes the London Borough of Waltham Forest.

The Council has duties as a 'competent authority' under the Conservation of Species and Habitats Regulations 2017 (as amended) to ensure that planning decisions do not result in adverse effects upon the SAC. The Council's Habitats Regulations Assessment (HRA) confirms that new residential development above the level of existing will have a significant effect on the ecological integrity of Epping Forest SAC alone and in combination with existing plans.

The council is will work with partners to develop a package of mitigation measures and develop an SPD 'Mitigating the Impact of Development on SAC/SPA' to inform the planning process.

Mitigation measures will fall into two categories:

- Strategic Access Management and Monitoring (SAMMs) - in order to mitigate the impacts of residential development via ongoing visitor management projects and monitoring of Epping Forest SAC.
- Suitable Alternative Natural Greenspace (SANGs) – SANGs will need to be delivered as part of some development and provide a suitable recreational 'offer' to attract visitors away from the SAC. SANGs may need to be delivered as a mix of financial contribution, environmental improvements and open space. Provision of SANGs will need to be in accordance with an agreed SANGs Strategy. The Council will work with partners including the City of London Corporation to develop a suitable SANGs Strategy and consult widely with statutory bodies such as Natural England.

- **Policy 84** The Lee Valley Regional Park – Development proposals affecting the Lee Valley Regional Park should be sensitive and proportionate and must not contribute to adverse impacts on ecological integrity, amenity or visitor enjoyment. The contents of the Lee Valley Development Framework as adopted is a material consideration in planning. Development which affects the Lee Valley SPA will be required to contribute towards mitigation measures.
- **Policy 85** Protecting and Enhancing Waterways and Green Corridors – Sets out planning requirements in relation to compliance with the Water Framework Directive, Flood Defence Consent, Environmental Permitting and retention of buffer zones adjacent to water courses.

- **Policy 86** Food Growing and Allotments – There should be no net loss of allotments sites. Development proposals will be expected to contribute to the supply, quality and accessibility of private and communal spaces on which to grow food and flowers; either on site or via financial contributions.

2.69 The draft Local Plan further addresses issues relating to the delivery and benefits of green infrastructure through the following themes:

- Promoting Health and Well-being
- Sustainable Transport and Infrastructure
- Ensuring Climate Change Resilience

2.70 Evidence-based documents to inform emerging policies and proposals for the Local Plan include:

- Town Centres and Retailing Study (2016)
- Sustainability Appraisal on the new Local Plan Direction of Travel Document (2017)
- Strategic Housing Market Assessment for London Borough of Waltham Forest (2017)
- Waltham Forest Employment Land Study (2016)

Waltham Forest Air Quality Action Plan

2.71 The Air Quality Action Plan (AQAP) covers the period between 2018-2023 and was prepared as part of the borough's duty to London Local Air Quality Management. The aim of the plan is to ensure residents can adopt healthier lifestyles through reduced exposure to pollutants and the uptake of more sustainable transport choices.

2.72 Actions within the plan are considered under six broad themes including:

- Emissions from developments and buildings
- Public health and awareness raising
- Delivery servicing and freight
- Borough fleet actions
- Localised solutions
- Cleaner transport.

2.73 In relation to green and blue infrastructure, the aspiration for a cleaner transport network is most relevant. The strategy aims to incentivise walking and cycling as much as possible, both of which can form part of the GI network.

Waltham Forest Local Flood Risk Management Strategy

2.74 Adopted in 2015, the Local Flood Risk Management Strategy sets out the responsibilities of the Council as the 'Lead Local Flood Authority'. 'Local' flood risk relates to events caused by surface water, groundwater, small rivers, streams and ditches. Main rivers still remain the responsibility of the Environment Agency.

2.75 The strategy gives an overview of the flood risk within the borough, what is being done to reduce this risk, and the key organisations responsible for managing this risk. Although it is not possible to stop all flooding incidents within the borough, the strategy aims to minimise the risk and damage caused. Working with local residents and businesses to minimise this risk is a fundamental part of the strategy's approach.

2.76 The main aims of the strategy to help minimise the risk of flooding are:

- **Drainage management strategy** – to develop a long-term drainage asset management strategy incorporating highways and watercourse maintenance.
- **Resilience** – to promote resilience measures for properties at risk.
- **Communications** – to keep local residents and businesses informed on any flood management works.
- **Innovation** – to promote the use of new technologies.
- **Sustainable drainage** – to promote the incorporation of SuDS into new developments and open space improvements, as well as retrofitting schemes within existing areas of high risk.

Waltham Forest Open Space Needs Assessment

2.77 This assessment, carried out in 2018 and updated in 2019, provides an evidence base for the development of open space policy within the borough's emerging Local Plan. It aims to facilitate the effective planning and identification of priority areas for improvement and to target the appropriate types of open space which are required. This will allow for an adequate provision of high quality, accessible open spaces to meet the needs of local communities now and in the future.

2.78 Results of assessment found that the greatest quantity of open space within the borough falls under the natural and semi-natural typology, primarily found within the borough's two regional parks, the Lee Valley and Epping Forest. Whilst the Central and North Neighbourhoods exceed open space quantity standards, the South Neighbourhood falls below. Therefore, increasing accessibility to open space within the south of the borough will be a key objective for the green infrastructure network.

Neighbourhood Planning

2.79 Neighbourhood Plans were introduced through the Localism Act (2011) and give local communities further

influence over the type of development in their local area. Waltham Forest Council are encouraging the preparation of neighbourhood plans as 'Community Plans', which once prepared will be adopted as Supplementary Planning Documents and used to support planning decisions.

2.80 The Highams Park Planning Group (HPPG) was formally set up in 2014 to produce a Neighbourhood Plan for the Highams Park area. The draft Highams Park Neighbourhood Plan[21] was submitted to the council November 2018 and has undergone public consultation. A referendum will now be held for residents, and once adopted the plan will cover the period up to 2033. Alongside the formal policies, the plan provides an Action Plan of aspirational projects suggested by the local community.

2.81 The following vision provides ambition requiring green infrastructure to be embedded and delivered within the area '*The Highams Park Area will continue to be an area of beautiful, well maintained green spaces, characterful, high quality homes with a thriving commercial centre and a vibrant community at its heart.*' This vision is supported by object 1 to preserve and enhance *'green/ open public spaces and the local environment through appropriate measures to provide where possible new open space or improved public realm. On a case by case basis this may include measures such as the planting of new trees and measures to promote biodiversity and nature conservation.'*

2.82 Within the plan, **Policy GNE1** addresses the designation of Local Green Space, particularly relating to Highams Park, sports grounds and allotments. Furthermore, new development should aim to provide on-site green infrastructure, alongside promoting biodiversity and new tree planting.

2.83 Policy SUS1 highlights the importance of maintaining and enhancing existing on-site biodiversity assets, as well as the linking of green corridors to provide a continuation through new developments.

2.84 Other relevant policies to support green infrastructure are set out in the following policy groupings: Character, Design and Public Realm; Guidance for Development of Sites; and Developer Contributions.

[21] Highams Park Planning Group (2018) The Highams Park Neighborhood Plan 2018

Chapter 3

Drivers for Green and Blue Infrastructure in Waltham Forest

Chapter 3
Drivers for Green Infrastructure and Blue Infrastructure in Waltham Forest

3.1 The benefits of green and blue infrastructure are being increasingly recognised and is considered within national planning policy and guidance as essential to ensuring the delivery of sustainable development. The multifunctional nature of green and blue infrastructure often makes it hard to quantify specific benefits, however, for the purposes of planning it is useful to develop a framework to further understand how green and blue infrastructure may provide for the needs of the community in the borough now, and in the coming years.

3.2 The following section provides an overview of the key drivers for the provision and ongoing stewardship of green and blue infrastructure within the borough. Drivers are considered under the following contextual themes:

- Population and housing growth
- Socio-economic context
- Environmental and climate change context

3.3 The key benefits of green and blue infrastructure relevant to each theme are outlined to provide the evidence base for developing robust recommendations.

Population and housing growth

There are ambitious plans for regeneration and growth within Waltham Forest. For growth to be sustainable, green and blue infrastructure must be considered alongside other forms of infrastructure and built development. In the context of a growing population, existing assets (such as high quality trees) must be protected and enhanced so they are resilient to additional pressures and provide resource for a wide range of users.

- Well-planned green and blue infrastructure can help to create cohesive neighbourhoods, which is a fundamental requirement to accompany the borough's projected population and housing growth.
- Parks and other green spaces promote community integration and can act as vital democratic spaces where people can come together and interact.
- High quality landscaping schemes within the boundaries of development sites can contribute towards the GI network and is essential to ensure future delivery of GI is sustainable.

Current population and projected growth

3.4 Waltham Forest covers approximately 3,881 hectares. The GLA (2017) estimates the population of the borough to be around 276,200, with around 105,981 households. The population density is around 71.2 people/ hectare, which is higher than the London average of 56.2/hectare[22].

3.5 The borough has seen some of the most rapid population growth in recent years; 13% between 2006 and 2016, and this is due to grow by a further 24% by 2033 (in a medium out-migration scenario)[23].

3.6 Both the housing targets in the draft new London Plan and the calculated housing figures in the WF Local Plan, result in Waltham Forest facing significant development pressure. In order for new development to be sustainable, resilient and to reinforce place making through providing healthy, attractive environments, green and blue infrastructure will need to be embedded within developments. Studies show that for this to be successful, existing and proposed assets should be identified, assessed and incorporated within the concept stages of development through to delivery on site

3.7 Blackhorse Lane and Northern Olympic Park Housing Zone within the south west of Waltham Forest covers approximately 950 hectares and is set to deliver 2,608 homes. Funding provided will benefit the zones as well as London as a whole, through additional infrastructure, open space and other local amenities.

3.8 The Waltham Forest Economic Growth Strategy (2016-2020) not only reiterates the need for housing growth at Blackhorse Lane, but also identifies opportunities for new urbanism at Lea Bridge and Leyton.

3.9 The Waltham Forest draft Housing Strategy (2019-2024) highlights how the regeneration of Council-owned land has been a fundamental method for delivering new housing within the borough, including sites at The Score Centre, the Town Hall Campus and Lea Bridge Station.

3.10 The draft local plan (2019) states that opportunities for housing growth in the borough will be maximised to deliver a minimum of 18,000 homes by 2030 and 27,000 homes by 2035.

3.11 The plan establishes 'Strategic Locations' which will be the primary locations for new homes, jobs and supporting infrastructure. Within Strategic Locations there will be 'Areas of Opportunity' consisting of small clusters of sites where a co-ordinated approach to site planning will be encouraged over piecemeal development. Further work to identify these areas is to be undertaken and published separately from the local plan.

3.12 Figure 3.1 shows how Waltham Forest is divided into three neighbourhood areas and **Table 3.1** outlines total housing targets during the plan period per neighbourhood area, alongside housing to be delivered within each Strategic Location. **Figure 3.2** shows the location of this planned growth throughout the borough.

Table 3.1: Housing targets per neighbourhood area

Strategic locations	Houses target up to 2035
Southern Neighbourhood Area	**15,000**
Lea Bridge & Church Road	2,850
Low Hall	700
Leyton	6,350
South Leytonstone	500
Leytonstone	700
Whipps Cross	1,700
Baker's Arms	850
Central Neighbourhood Area	**8,000**
Walthamstow Town Centre	3,150
Forest Road Corridor	1,250
Blackhorse Lane	1,650
Wood Street	550
Northern Neighbourhood Area	**4,000**
North Chingford	300
South Chingford/Chingford Mount	200
Highams Park	450
Sewardstone Road	450
North Circular Corridor	900

[22] GLA (2017). London Borough Profile and Atlas. Available at: https://data.london.gov.uk/dataset/london-borough-profiles

[23] GLA (2019). GLA Borough Preferred Options 2017-based projections

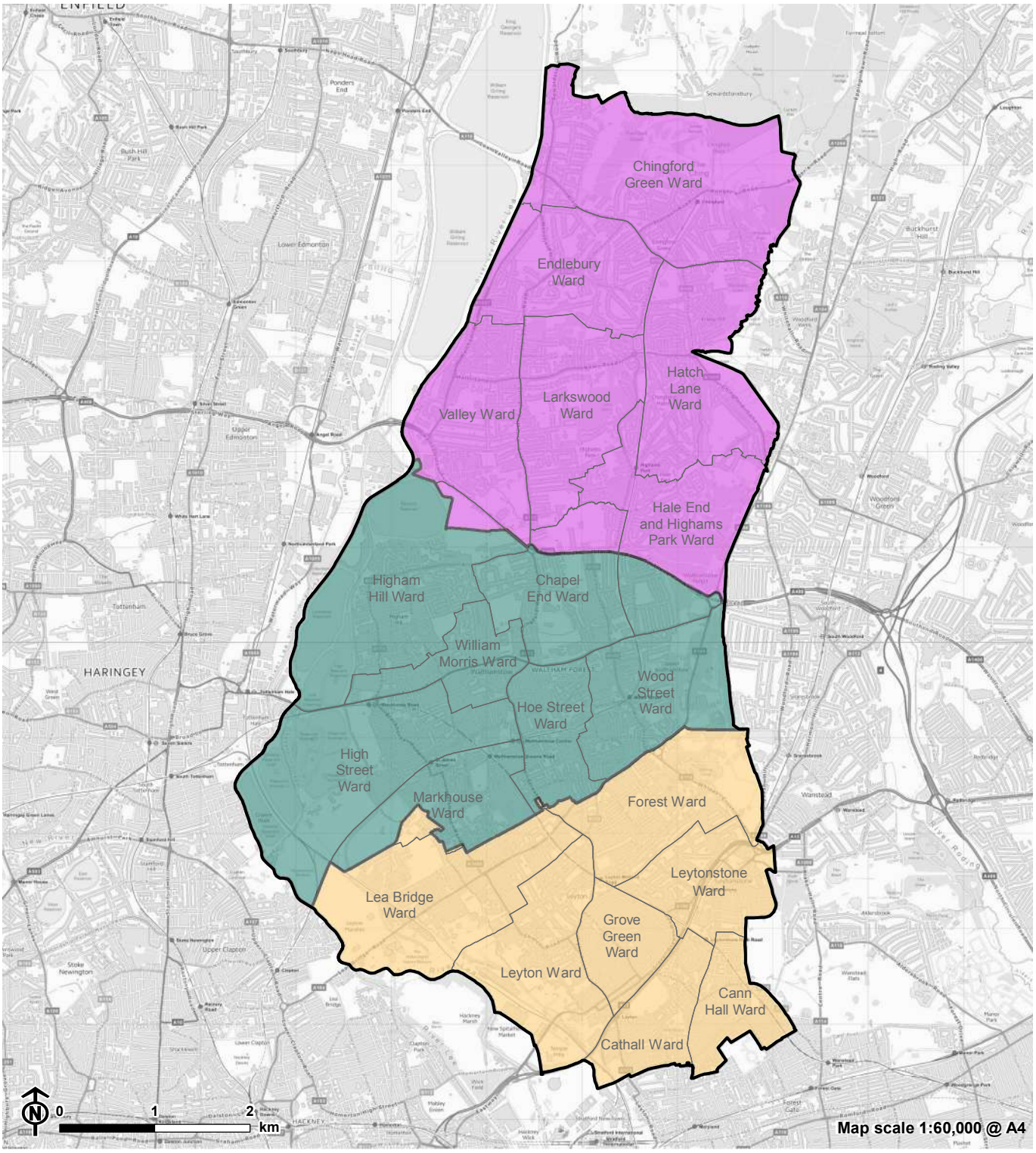
Infrastructure and transport

3.13 There are several key transport, infrastructure and development schemes, at various stages of development and delivery. Key considerations for developing and implementing a strategy include the following:

- Waltham Forest has sponsored a £12 million scheme to which saw the reopening of Lea Bridge Station in May 2016.
- The Crossrail 2 'safeguarding line' has been established just outside the borough, to the western side of the Lee Valley Regional Park. There would be potential to connect to this service from Waltham Forest.
- Crossrail 1 passes just outside the southern boundary of the borough. There is the potential to create links with the service from Waltham Forest.
- Between £33-36 million of Transport for London funding has been spent on the Mini-Holland programme, improving cycling infrastructure in the borough.

3.14 The council has previously identified priority projects for growth and investment in transport, including:

- Enhancements to Walthamstow Central as a key transport interchange.
- Improvements to Leyton Underground Station.
- Development of proposals for a new station in the Lea Valley Eastside area. (at the point where Ruckholt Road crosses the Lea Valley Line).
- Development of rail and underground stations as 'gateways' to the borough's town centres and growth areas, including investment in placemaking and Access for All.
- Planning a smarter, greener bus network.



Contains Ordnance Survey data © Crown copyright and database right 2020

CB:DM EB:Beetham_m LUC FIG3_1_10678_r0_Neighbourhood_areas_A4P 17/04/2020
Source: OS, LUC, GLA, London Borough of Waltham Forest

Figure 3.1: Neighbourhood Areas

Waltham Forest boundary

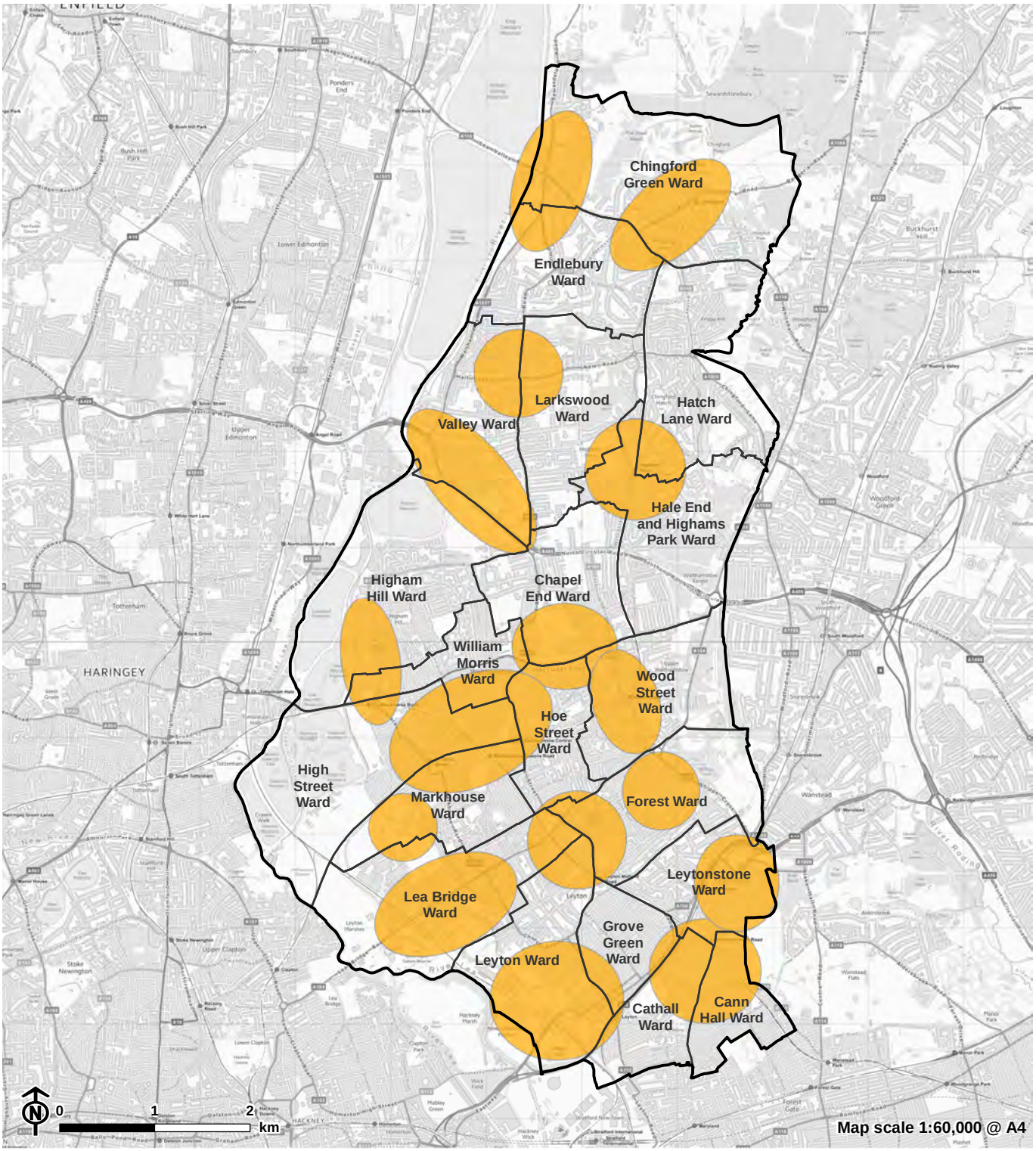
Ward boundary

Neighbourhood Areas

Central neighbourhood

North neighbourhood

South neighbourhood



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CB:MB EB:Beetham_m LUC FIG3_2_10678_r0_Planned_Growth_A4P 04/12/2019
Source: OS, London Borough of Waltham Forest

Figure 3.2: Strategic Locations

- Waltham Forest boundary
- Ward boundary
- Strategic Location

Socio-economic context

Green Infrastructure can help improve the health and well-being of local communities, as well as provide economic benefits.

- Fields in Trust estimate that the well-being value associated with frequent use of local parks and green spaces is worth £34.2 billion per year. Parks and green spaces are estimated to save the NHS around £111 million per year.[24]
- Previous estimates by Defra have indicated that if everyone in the UK had access to sufficient green space, additional savings for the health system may equate to as much as £2.1 billion per year.[25]
- UK studies have shown that good access to urban green space is associated with higher use, higher physical activity and a lower likelihood of being overweight or obese.[26]
- In residential areas that have higher levels of 'greenness', the risk of mortality from cardiovascular disease is lower.[27]
- It has previously been estimated that the 'Green Gym' scheme, which is run by The Conservation Volunteers (TCV) across the UK, generated savings to the health services in the region of £1.35 million between 2005 and 2009. Equating to around £2.55 saved in treating physical inactivity related illnesses for every £1 invested.[28]
- Considering benefits gained from using parks and green spaces, it is estimated that the total economic value to individuals is £30.24 per year.[29]
- Recent research shows individuals from Black, Asian and Minority Ethnic groups may be twice as likely to use park and green spaces for team and individual sports than individuals who are white.[30]

Borough demographic

3.15 Waltham Forest is one of the most ethnically diverse boroughs in the country and Black, Asian and Minority Ethnic (BAME) groups have been increasing in recent years. Key statistics relating to the borough demographic are outlined below:[31]

- The average age of residents is 35 years, compared to the UK average of 40 years.
- Almost 70% of the population identify as an ethnic group other than White British, compared to just under half in 2001.
- The percentage of the 'Other White' group from that includes arrivals from EU accession countries has more than doubled in the last decade from 6% to 15%.
- Waltham Forest has the second largest proportion of Central and Eastern European residents of all London boroughs, with 9% of the population originating from Central and Eastern Europe.
- 49.9% of the population come from BAME groups.
- The three largest migrant groups in Waltham Forest are those from Pakistan (4.9%), Poland (3.2%) and Romania (1.7%).

3.16 Population density within the borough can be seen in **Figure 3.3**. Generally, neighbourhoods with a higher population density can be found in the south, such within Leyton and Walthamstow. This can be due to a variety of factors, including proximity to central London and housing stock, as well as the cultural, ethnic and economic composition of those living there. Concentrations decrease in the north of the borough towards Chingford.

Deprivation

3.17 The Indices of Deprivation 2015 provide a set of relative measures of deprivation for small areas (Lower-layer Super Output Areas) across England, based on seven different domains of deprivation. The Index of Multiple Deprivation, commonly known as the IMD, is the official measure of relative deprivation for small areas in England, combining information from seven domains to produce an overall relative measure of deprivation. Waltham Forest is one of the 20% most deprived districts/ unitary authorities in England.[32]

3.18 Waltham Forest is highly deprived (among 10% most deprived nationally) on three of the seven measures of deprivation: crime; barriers to housing and services; and living environment. The high levels of deprivation in the borough related to living environment are mainly to do with outdoor factors such as air quality and road traffic accidents. 95% of

[24] Fields in Trust (2018) Revaluating Parks and Green Spaces: Measuring their economic and well-being value to individuals
[25] Defra (2010) Defra's Climate Change Plan
[26] Natural England (2011) Green space access, green space use, physical activity and overweight
[27] Parliamentary Office of Science & Technology (2016) Green Space and Health
[28] The Conservation Volunteers. Cost-effective health: Estimated cost effectiveness of the BTCV Green Gym between 2005-2009 2010. Available from: http://www2.tcv.org.uk/Cost-effective-health.pdf
[29] Fields in Trust (2018) Revaluating Parks and Green Spaces: Measuring their economic and well-being value to individuals
[30] Fields in Trust (2018) Revaluating Parks and Green Spaces: Measuring their economic and well-being value to individuals
[31] GLA (2019). London Borough Profiles and Atlas. Available at: https://data.london.gov.uk/dataset/london-borough-profiles
[32] Public Health England (2018) Waltham Forest Local Authority Health Profile 2018

Waltham Forest residents live in areas that are ranked as the most deprived half of the country, while only 5% live in the least deprived half. Approximately 19% of children live in low-income families.

3.19 However, Waltham Forest has improved its relative ranking as 15th most deprived local authority in England in 2010 to 35th most deprived in 2015.[33] Relative to other London boroughs, the improvement has been less noticeable, from 6th most deprived to 7th most deprived out of 33 London boroughs. The borough has also become less polarised in terms of the north/ south divide between levels of deprivation. The spatial distribution of deprivation across Waltham Forest can be seen in **Figure 3.4**.

3.20 When compared to England averages, the health of residents living in the borough varies, with multiple health inequalities, which can be seen in **Figure 3.5**. Life expectancy for women in the borough is higher than the England average as well as estimated levels of adults with excess weight. Life expectancy is 5.6 years lower for men and 4.9 years lower for women in the most deprived areas compared to the least deprived areas.

3.21 Several other IMD health indicators that are significantly worse than the England average:

- Under 75 mortality (cardiovascular)
- Diabetes diagnosis for people aged 17+
- Obesity in children aged 10-11
- Excess winter deaths
- New cases of STDs and Tuberculosis[34]

3.22 Data from the National Child Measurement programme indicates that the borough performs poorly on several aspects relating to children's health. Data from 2017/ 18 indicates that 40% of 10-11 year old (Year 6) children were overweight or obese in the borough (compared to 38% in London and 34% in England), and 24% of 4-5 year old (reception) children were overweight or obese in the borough compared to 22% in London and England[35].

3.23 The Sport England Active Lives Surveys measure the activity levels of people across England. Data from 2017/ 18 indicates that 26% of residents are considered 'inactive' (less than 30 minutes physical activity a week), compared to London at 24%. 10% are fairly active (30-149 minutes physical activity per week) and 64% are active (150+ minutes physical activity per week).

3.24 At the time of survey, 44% had only done light intensity activity within the previous 28 days, compared to 39% for London. 46% had done no physical activity within the previous 28 days, compared to 53% for London.[36]

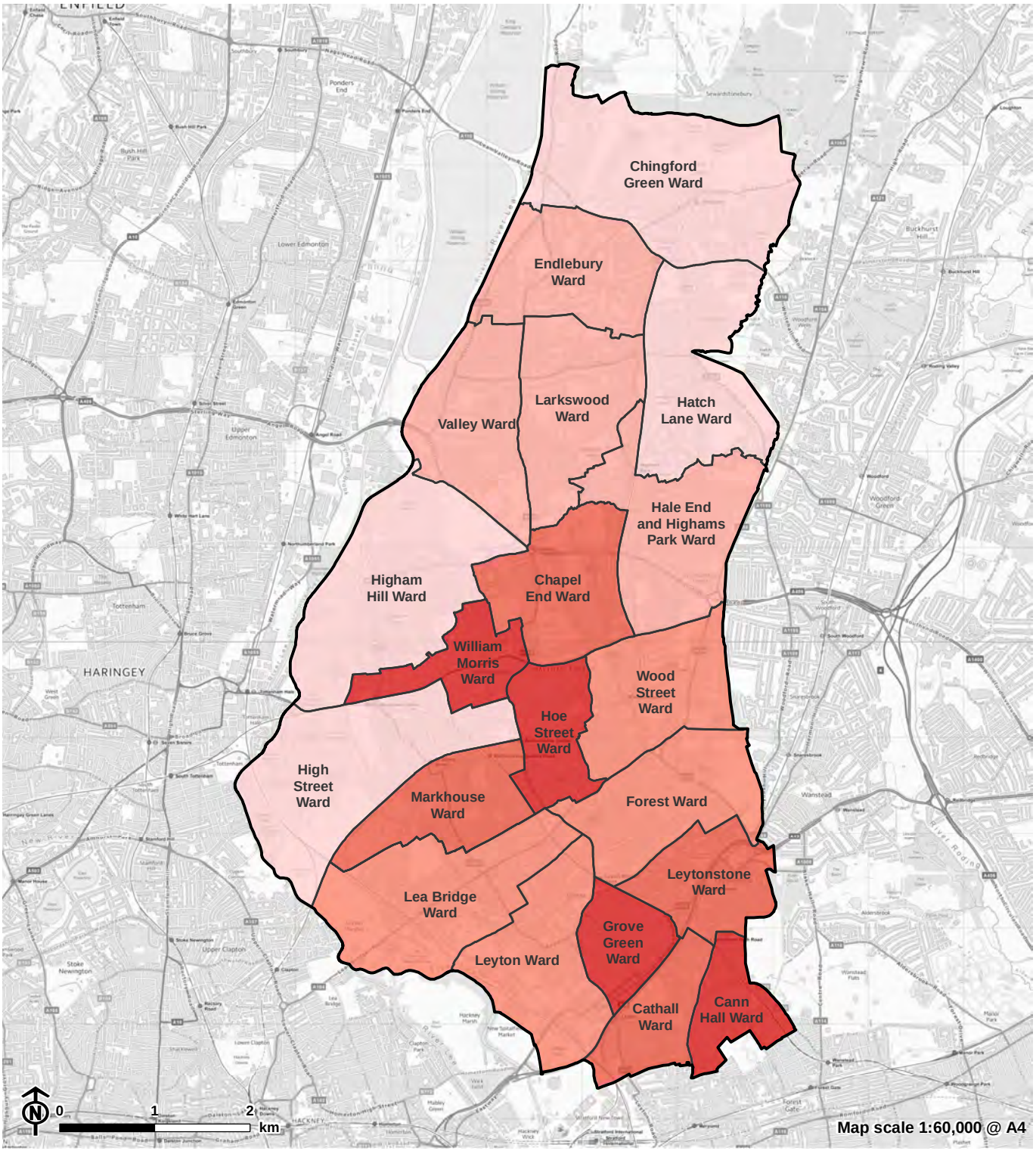
Mental health

3.25 Well-being is measured in the Annual Population Survey. This can be scrutinised at local authority level and includes questions on several interrelated concepts; life satisfaction, feeling worthwhile, happiness and anxiety.

3.26 The headline findings from the 2016/17 survey are outlined below:

- 80% of the population in Waltham Forest report high or very high 'life satisfaction', which is above average when compared to the other London boroughs and comparable to the England average.
- 84% of the population report feeling worthwhile as high or very high, which is above the London and England averages.
- 79% of the population within the borough report high or very high levels of happiness, which is above the London and England averages.
- 68% of the borough's residents report low or very low levels of anxiety. Lower levels of anxiety are reported than London and England averages.

[33] Data provided by Waltham Forest's Resident Insight & Performance Team
[34] Public Health England (2018) Waltham Forest Local Authority Health Profile 2018
[35] Local Government Association (2018). National Child Measurement Programme
[36] https://activelives.sportengland.org/Query/QueryBuilder



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CB:MB EB:Beetham_m LUC FIG3_3_10678_r0_Population_Density_A4P 04/12/2019
Source: OS, GLA

Figure 3.3: Population Density

Waltham Forest boundary

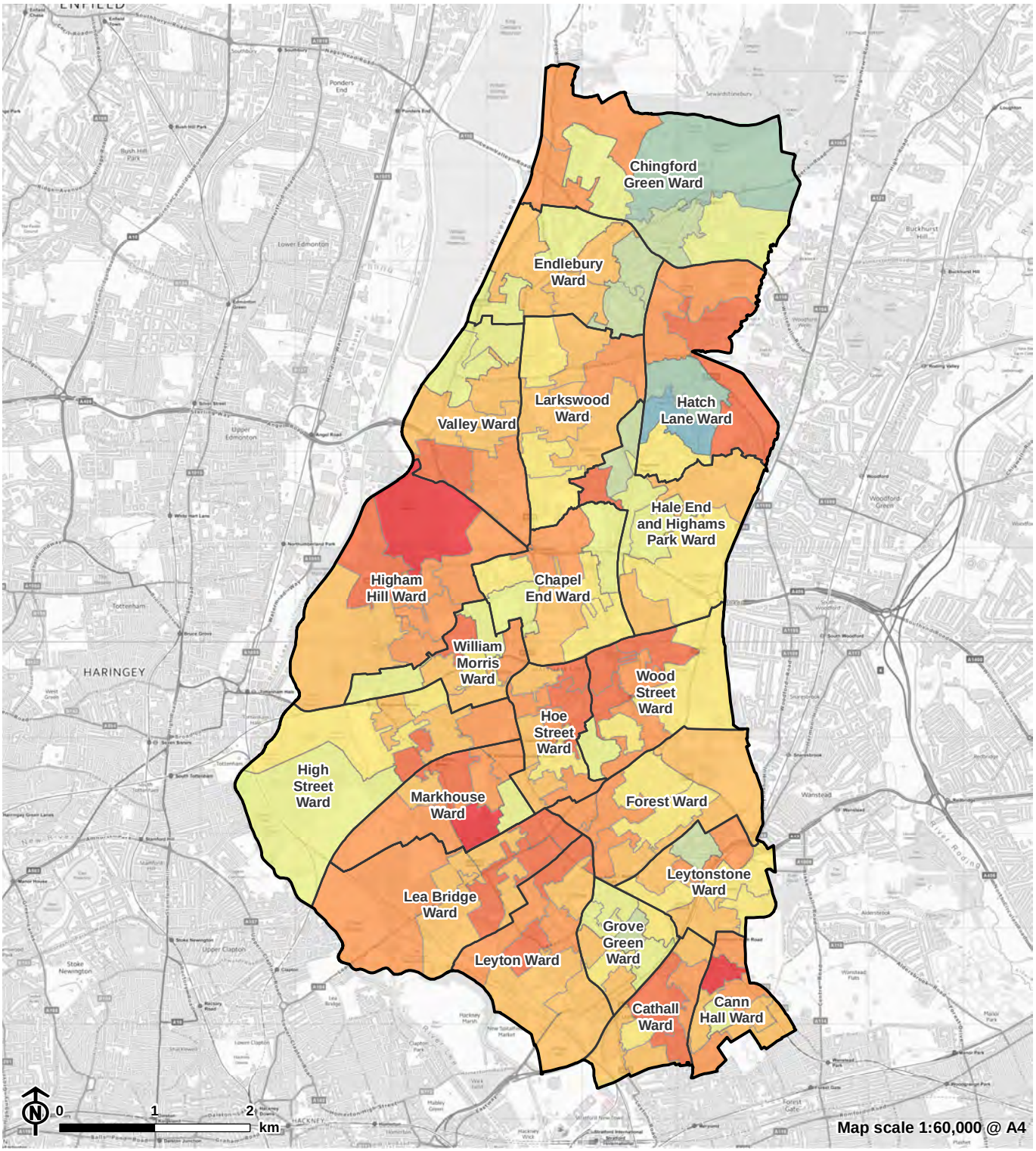
Ward boundary

Population density (1000 people/km²)*

- 2.89 - 5.12
- 5.12 - 6.06
- 6.06 - 7.88
- 7.88 - 12.46
- 12.46 - 17.86

*Population density is displayed using quantile classification. Each class contains an equal number of features.

Population density calculated from: GLA 2017-based borough preferred option (BPO) projection - medium out migration model.
Model run: 05/06/2019.



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Source: OS, MHCLG

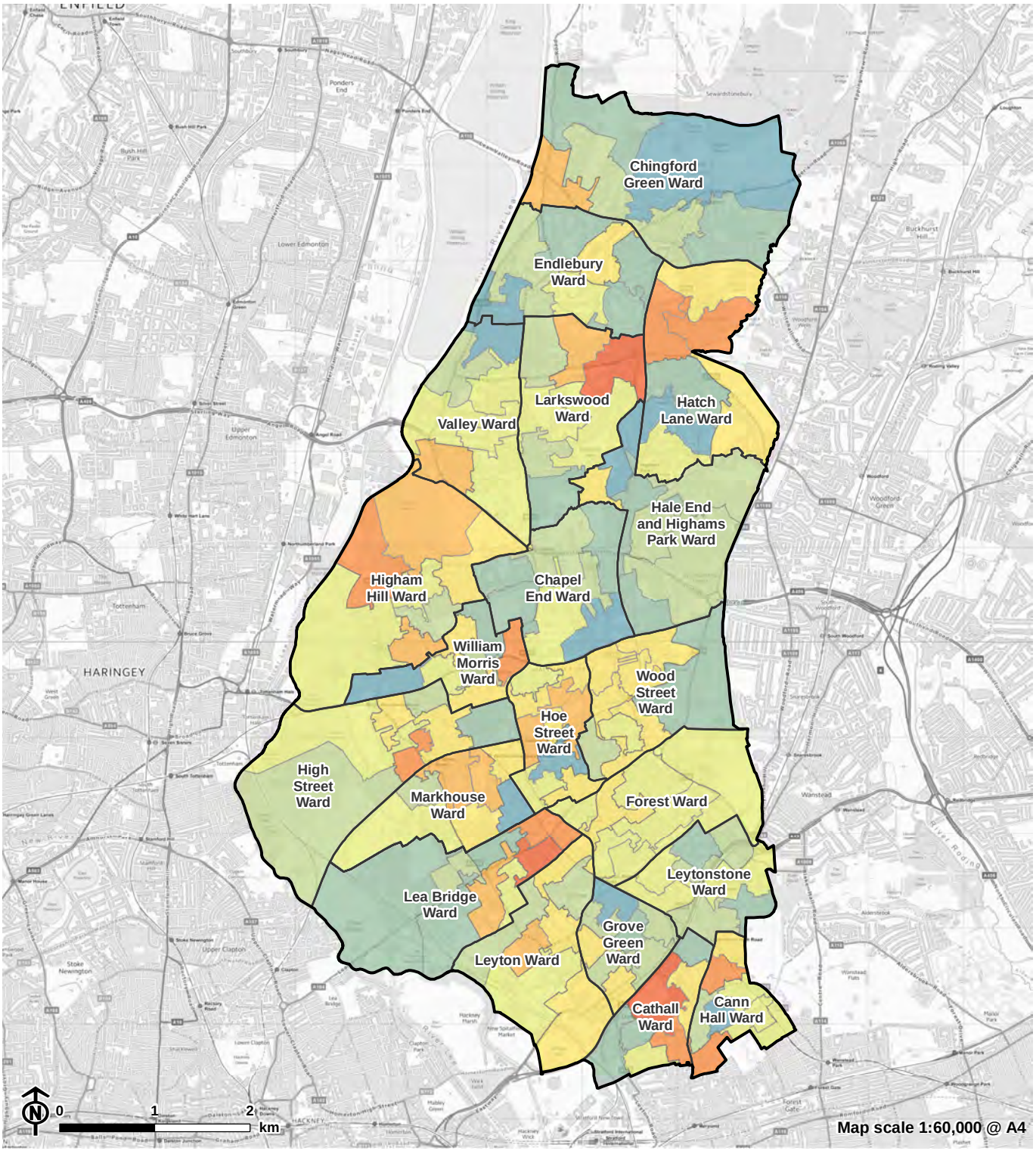
Figure 3.4: Index of Multiple Deprivation (IMD): Overall Deprivation

Waltham Forest boundary

Ward boundary

IMD: overall deprivation

- 0 - 10% (most deprived)
- 10 - 20%
- 20 - 30%
- 30 - 40%
- 40 - 50%
- 50 - 60%
- 60 - 70%
- 70 - 80%
- 80 - 90%
- 90 - 100% (least deprived)



MHCLG, 2019. Contains National Statistics data © Crown copyright and database right 2019
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CB:MB EB:Beetham_m LUC FIG3_5_10678_r0_Health_Deprivation_A4P 04/12/2019
Source: OS, MHCLG

Figure 3.5: Index of Multiple Deprivation (IMD): Health Deprivation

Waltham Forest boundary

Ward boundary

IMD: health deprivation

- 0 - 10% (most deprived)
- 10 - 20%
- 20 - 30%
- 30 - 40%
- 40 - 50%
- 50 - 60%
- 60 - 70%
- 70 - 80%
- 80 - 90%
- 90 - 100% (least deprived)

3.27 While the results above indicate a relatively good overall state of adult mental health in the borough. There is also evidence to show that the borough performs poorly compared to other London boroughs for a range of other factors for low levels of well-being and poor mental health.

3.28 The GLA has previously produced 'scores' for well-being for each ward within London based on twelve well-being indicators, with data from 2009-2013. Indicators include, among others, economic security, crime rate and access to open space. 15 out of 20 wards within the borough scored lower than average for the well-being index. Hoe Street, Cann Hall, Leyton and Valley are the poorest performing.[37]

3.29 The picture of children and young people's mental health in the borough is less positive. The Public Health England Children and Young People's Mental Health and Well-being profile for the borough estimates that 9.7% of 5-16 year olds have a mental health condition, compared to the England average of 9.2%. The profile also shows positive satisfaction with life among 15 year olds (2014/ 15) to be lower than the London average.[38]

Relevant borough-wide strategies relating to health and well-being:

Waltham Forest Health and Well-being Strategy 2016-2020

The ambition of Waltham Forest's Health and Well-being strategy is that Waltham Forest *'will be a borough where people can live a healthier and longer life'*. The strategy also sets out three high level outcomes:

- The best start in life
- Healthy, happy, longer lives
- Thriving maturity and protected communities

The strategy also sets out several ambitions directly relating to the provision of green infrastructure, including:

- Promote volunteering and engagement activities, such as food growing;
- Ensure that physical activities and other programmes in parks are being accessed by those most in need; and
- Work with the 'Mini-Holland' scheme and other partners to reduce air pollution and promote active travel, and to ensure that sustainability is at the heart of local action.

Waltham Forest Mental Well-being Strategy 2018-2021

The aim of the strategy is to *'Promote population mental well-being in Waltham Forest'.* The importance of good access to open space and a healthy living environment is highlighted within several recommendations that have been set out as part of the strategy.

Early intervention and the prevention of mental health problems are given particular consideration. Of relevance to the provision of green and blue infrastructure, there is an existing programme of social prescribing in the borough (such as gardening and sports), and exercise on referral is delivered via the 'Healthwise' programme. The borough's parks and open spaces are currently used as venues for several volunteering and community-based projects that help deliver health and well-being aims.

New Health and Wellbeing Strategy (2020)

The Council is expected to update their Health and Wellbeing Strategy later this year, which will include numerous sub-strategies such as the Healthy Weight Strategy, Mental Wellbeing Strategy, Substance Misuse Strategy and Sexual health Strategy. Within this update, the ambitions set out in the strategies above will be built upon using the latest thinking and research.

Economic growth

3.30 This Waltham Forest Economic Growth Strategy (2016-2020) sets out the Council's plan for economic growth from 2016 – 2020. The strategy is currently in the process of being updated to reflect latest thinking and is expected to be adopted at the end of the year. The vision of the strategy is *'To maximise the opportunity of Waltham Forest's unique place in London to help our economy grow and thrive, enabling residents to enjoy sustainable prosperity and a high quality of life.'* The vision is underpinned by five key themes; Business, Town Centres, Housing Growth, Employment and Skills, and Infrastructure.

3.31 The strategy recognises the importance of open space within the context of the growing and changing population and identifies a need to provide a wider range of amenities such as play areas, cafés and performance spaces. Under theme five 'Infrastructure', an ambition is set out to build on the success of creating and extending open spaces such as Walthamstow Wetlands, Leyton Jubilee Park and Eton Manor.

3.32 Its outer London location gives the borough a strong relationship with the East and South East of England; adjoining several London boroughs and the Epping Forest

[37] https://data.london.gov.uk/dataset/london-ward-well-being-scores

[38] Carter, R. *et al*. (2018) London Borough of Waltham Forest: mental Well-being Strategy 2018-21

district in Essex. The borough is included within the London-Stanstead-Cambridge Corridor, the Mayor's Vision for East London, City in the East and Upper Lea Valley Opportunity Area.

3.33 The borough has previously seen some of the fastest employment growth in London, with a 30% increase in jobs in the borough between 2009 and 2014 compared to the London average of 14% over the same period. There was a 44% increase in business growth in the borough between 2010 and 2015 compared to the London average of 29%.

3.34 The borough is home to over 8,500 businesses. Waltham Forest is a small business economy, 76% of companies employing 4 people or less (compared to 73% in London). The top five sectors in the borough are; digital and creative (40%), construction (35%), professional and urban services (30%), Manufacturing (35%) and Retail (10%).

3.35 Specific evidence of the cost benefits and value of green and blue infrastructure has become available in recent years. This has been recognised within the London Infrastructure Plan which highlights the potential of green infrastructure to be supportive of economic growth and competitiveness, for example through providing better value for money for flooding and transport solutions when compared to traditional infrastructure.[39] In addition, a recent report by Public Health England has highlighted the potential role of green infrastructure (alongside other measures) in improving and regenerating the High Street.[40] Reporting by the Office for National Statistics (ONS) and Defra identifies that the close proximity of residential properties to areas of functional green space, such as a park or golf course, has a positive effect on property prices.[41] This is in addition to any potential for green and blue infrastructure provision to result in increased levels of business revenue and the creation and safeguarding of jobs.[42]

3.36 The Argall Business Improvement District (BID) in Leyton is an example of how different organisations can take on responsibility for enhancing the setting of their businesses. The BID has used planting to enhance public realm and encourage sustainable transport choices, all of which can have a positive effect on the local economy.

Environmental and climate change context

The resilience of urban areas to the effects of climate change will be essential to ensure good quality living environments and health, functioning ecosystems in the years to come. Green and blue infrastructures provides a means to help mitigate the effects of climate change, and work towards reducing some of the causes; developing a more resilient environment.

- Trees can reduce flood risk. It is estimated that 10,000 trees can retain around 35 million litres of water per year.[43]
- Vegetation can mitigate the effects of the Urban Heat Island effect by creating shade; reducing the risk of heat stroke and exhaustion.
- London's i-Tree assessment estimates energy related cost savings provided by trees within London to be as much as £315, 477 million annually, due to protection provided from solar radiation and wind.[44]
- There is a need to consider green infrastructure alongside built or 'grey' infrastructure. Where major infrastructure is coming forward it is essential that green infrastructure is considered at an early stage, whether this is for the purposes of the protection of key assets, or to identify key strategic opportunities for strengthening the network.
- Opportunities to mitigate negative impacts from infrastructure projects may also need to be considered, some of which may be delivered through green and blue infrastructure. For instance, it has been shown that a 30m wide shelter belt of trees and shrubs can reduce noise levels by around 5 to 10 decibels.[45]

Waltham Forest Air Quality Action Plan (AQAP) 2018-2023

- The AQAP has been prepared as part of the borough's duty to London Local Air Quality Management. Priorities are set out in order to manage the impact of future growth in the borough and to support healthy lifestyles.
- Actions are considered under six broad topics including 'Cleaner *Transport', aiming to '…incentivise a change to walking, cycling and ultra-low emission vehicles as far as possible*.'

[39] Mayor of London (2014) Enabling Infrastructure: Green, Energy, Water and Waste Infrastructure to 2050
[40] Public Health England (2018) Healthy High Streets, Good place-making in an urban setting
[41] ONS (2018) Estimating the impact urban green space has on property price
[42] The Land Trust (2018) The Economic Value of Our Green Spaces
[43] Parliamentary Office of Science & Technology (2016) Adapting Urban Areas to Flooding
[44] Treeconomics London (2015) Valuing London's Urban Forest. Results from the London i-Tree Eco Project
[45] Parliamentary Office of Science & Technology (2016) Green Space and Health

The Climate Emergency

3.37 In April 2019, Waltham Forest Council declared a Climate Emergency, establishing their commitment to responding to the threat of climate change. Recent decades have seen an overall warming trend in the UK. The Met Office central England temperature series indicates that the 21st century has been warmer than the past three centuries[46], with the summer of 2018 being the joint hottest recorded in England[47].

3.38 The impacts of these changes in the UK have been comprehensively researched by the UK Climate Impacts Programme (UKCIP)[48], with reported threats and opportunities for London published in 'London's Warming – the impacts of climate change on London'[49]. The major impacts that can be expected in the future as a result of climate change include increased frequency of extreme weather events such as floods and droughts; rising sea levels; hotter, drier summers; and warmer, wetter winters. The effects of a changing climate will be far reaching, extending to impacts on health, resources and biodiversity, including the green and blue infrastructure of Waltham Forest.

3.39 The borough's existing green and blue infrastructure network plays a significant role in allowing communities and wildlife to adapt to these increased pressures. The Council is responsible for managing the large majority of these spaces and it is therefore their role to ensure this network continues to meet the current and future needs of the borough.

Warming cities

3.40 Within urban areas, increases in temperature are exacerbated by the 'urban heat island effect', whereby the concentration of built development retains heat, resulting in a cumulative effect on overall temperatures. The issue has been identified as one of the key risks in the coming decades by the International Panel on Climate Change. Previous studies have shown average night time temperatures in London to be approximately 4°C higher in the city centre than the surrounding rural areas[50], with records indicating that temperature differences of up to 10°C have been reached during heatwaves[51].

3.41 Green and blue infrastructure works to reduce urban air temperatures through evapotranspiration, reflecting more solar radiation, having lower heat storage capacities and providing shade, and giving a more open view of the sky. Research shows that night-time air temperatures in a large park in London were up to 4°C lower than in built-up area.[52]

3.42 Inland habitats and species will have to cope with new and changing seasonal temperatures and rainfall patterns. New pests and diseases are likely to take on a new prevalence, as well as exotic, non-native plant and animal species – combining to change the distribution and composition of semi-natural habitats across the landscape.

3.43 In response, green and blue infrastructure proposals and projects will need to strengthen the resilience of habitats, as well as provide sustainable drainage. The challenge will be to respond to climate change while ensuring the retention and creation of green and blue assets.

Flooding

3.44 Climate change can contribute to increases in local flood risk in a number of ways. Rising sea or river levels may cause increased flood risk inland due to interactions with drains, rivers and small watercourses. In addition, more intense rainfall events may increase surface water run-off, with subsequent additional risk of sewerage overflow and potential for damage to water quality, property and people.

3.45 The River Lea and the Lee Navigation, as well as multiple tributaries which connect to these more sizeable waterbodies (including Pymmes Brook and Dagenham Brook), are located on the western edge of Waltham Forest. This western edge is also defined by the presence of a number of reservoirs, including King George's Reservoir, William Girling Reservoir, Banbury Reservoir and the Walthamstow Reservoirs. The western edge of the borough is therefore bounded by areas of flood zone 2 and 3.

3.46 Areas of flood zone 2 and 3 are found within the borough itself around Banbury Reservoir, spreading to the east following the course of the River Ching. Some sections of the North Circular Road (A406) are also at risk of flooding.

3.47 More significant areas of flood zone 2 and 3 are located in the south west of the borough, particularly in the Lea Bridge and Leyton wards. Much of the railway line through the west of Waltham Forest is within this larger area of flood risk. This area also takes in Walthamstow Marshes and Leyton Marshes along the route of the River Lea, as well as parts of Leyton Jubilee Park.

3.48 Areas of higher ground have been established at many areas of higher flood risk particularly in the west, as well as

[46] Met Office Hadley Centre (2019) https://www.metoffice.gov.uk/hadobs/hadcet/
[47] Met Office (2018) https://www.metoffice.gov.uk/news/releases/2018/end-of-summer-stats
[48] https://www.ukcip.org.uk/publications/
[49] London Climate Change Partnership (2002). London's Warming – the impacts of climate change on London. A climate change impacts in London evaluation study
[50] GLA (2018) Urban Heat Island in London
[51] London Climate Change Partnership (2019) http://climatelondon.org/climate-change/heatwaves/
[52] Forestry Commission (2019) The role of urban trees and greenspaces in reducing urban air temperatures

along the route of much of the Ching. Enfield Montagu Recreation Ground, which is immediately west of the borough, is identified as a flood storage area, with Lee Valley Park to the south west of the borough also being identified.

3.49 The main source of flood risk within Waltham Forest is fluvial flooding associated with the Lower Lea, its tributaries and associated diversion channels in the west of the borough.[53] This is evident in **Figure 3.7** where fluvial flood risk is concentrated in the west of the borough with an exception of the Ching corridor.

3.50 Surface water flooding is also an issue throughout Waltham Forest, particularly within the centre of the borough. It can be seen in **Figure 3.8** that the neighbourhoods to the north of Walthamstow are particularly at risk.

Water quality

3.51 The River Lea, its associated tributaries and reservoirs are a significant landscape feature and ecological asset. However, the Lea is one of the most polluted catchments in Britain[54], and water abstraction has previously been identified as a significant pressure.[55] Rivers in London are under particular pressure from several pollution types including litter, raw sewage, pollutants from misconnected plumbing, and surface run-off (diesel and sediments from roads and fields); at times resulting in dangerously high levels of nutrients and pollutants.

3.52 Expected fluctuations in rainfall and climate change driven alterations in hydrological regimes threaten to exacerbate any existing issues with water quality and limit the ecological value of the borough's blue network. Further growth has the potential to increase this pressure through requirements for flood defences, an increase in sealed surfaces and increased pollution.

3.53 The Council has undertaken Critical Drainage Area (CDA) modelling covering the worst affected areas of the borough. However, it is hoped that securing additional funding will allow for the entire borough to be modelled. Within the worst affected areas, attenuation ponds have been created using reed beds to mitigate peak flow.

3.54 Further work is required to undertake the Level 2 Strategic Flood Risk Assessment for Waltham Forest, alongside carrying out utility capacity studies and phasing analysis, alongside Thames Water, in relation to waste water.

3.55 Green and blue infrastructure solutions and a strategic approach to the borough's network of rivers and streams will be needed to ensure that any additional pressures from growth and development are suitably mitigated. This may include the provision of sustainable urban drainage systems (SuDS) as part of development and infrastructure, alongside the appropriate protection and enhancement riparian areas.

Air quality

3.56 The whole of the borough is included within an Air Quality Management Area (AQMA). The AQMA area has primarily been declared in relation to the following:

- The borough is failing to meet the EU hourly and annual mean average limit values for NO2 at roadside and kerbside locations.
- The borough is meeting EU limits for PM10 but failing to meet World Health Organisation air quality guidelines for this pollutant (no safe level has been identified).
- The borough has formal responsibility to work towards reductions in PM2.5 (a fraction of PM10).[56]

3.57 Pollutants originate predominantly from road traffic. As such, the areas which display the highest concentrations of poor quality air are found along the busiest routes in Waltham Forest. The North Circular Road (A406), which cuts through the central portion of the borough from west to east, as well as the A12, which is located towards the south eastern corner of the borough, have the poorest air quality in the borough.

3.58 The southern portion of the borough is more developed and contains more A-roads than the north, and as a result, the southern part of the borough has larger areas of poor air quality. The north eastern corner of Waltham Forest (around Epping Forest) benefits from better air quality than the rest of the borough due to less dense road infrastructure and the presence of Epping Forest. This disparity in air quality across the borough can be seen in **Figure 3.6**.

3.59 There are 13 Air Quality Focus Areas that have been identified as having high levels of pollution and human exposure:

- Sewardstone Rd & Kings Head Hill
- Hall Lane & North Circular
- Forest Rd, Blackhorse Rd, Blackhorse Lane
- Lea Bridge Rd
- Lea Bridge Rd & Markhouse Rd
- Hoe St & Selbourne Rd
- Leyton High Rd, Warren Rd, Ruckholt Rd

[53] Waltham Forest Council (2014) Local Flood Risk Management Strategy
[54] Thames River Trust (2018) Thames 21: Community (water quality) Modelling, Lower River Lea
[55] Davies, G. R. (2011) A water quality analysis of the River Lea and major tributaries within the perimeter of the M25, from Waltham Abbey to Bow Locks
[56] Waltham Forest Council (2018) London Borough of Waltham Forest Air Quality Action Plan 2018-2023

- Billet Round About, Chingford Rd, Billet Rd
- Southend Rd, Woodford New Rd
- Forest Rd & Wood St
- Whipps Cross Rd & Lea Bridge Rd
- Hoe St
- Green Man Round About, Leytonstone High Rd, Gainsborough Rd

Mini-Holland scheme

3.60 In 2013, Waltham Forest was one of three London boroughs that were granted funding from the London Mayor as part of London's Mini-Holland fund. This funding has since been used to upgrade the street and road network in order to help overcome issues related to road safety, public health and air quality. 'Enjoy Waltham Forest' is the borough's wider programme of work to make the borough more enjoyable for everybody through engagement, improved walking and cycling networks, improved access to public transport and new outdoor spaces such as 'parklets'.

3.61 In 2018, Waltham Forest Council commissioned King's College London's Environment Research Group to model the impacts of road interventions, including the Enjoy Waltham Forest scheme on air quality. The results showed a marked contribution to improving air quality and health in the borough in relation to measures taken to give pedestrian and cyclist priority through segregated cycle lanes, creation of pocket parks and timed road closures.

Ecological resilience

3.62 Species diversity is declining worldwide. Between 2002 and 2013, 53% of UK species were shown to have declined[57], and the National Ecosystem Assessment has previously indicated that over 40% of priority habitats and 30% of priority species are declining, driven partly by the changing climate.[58]

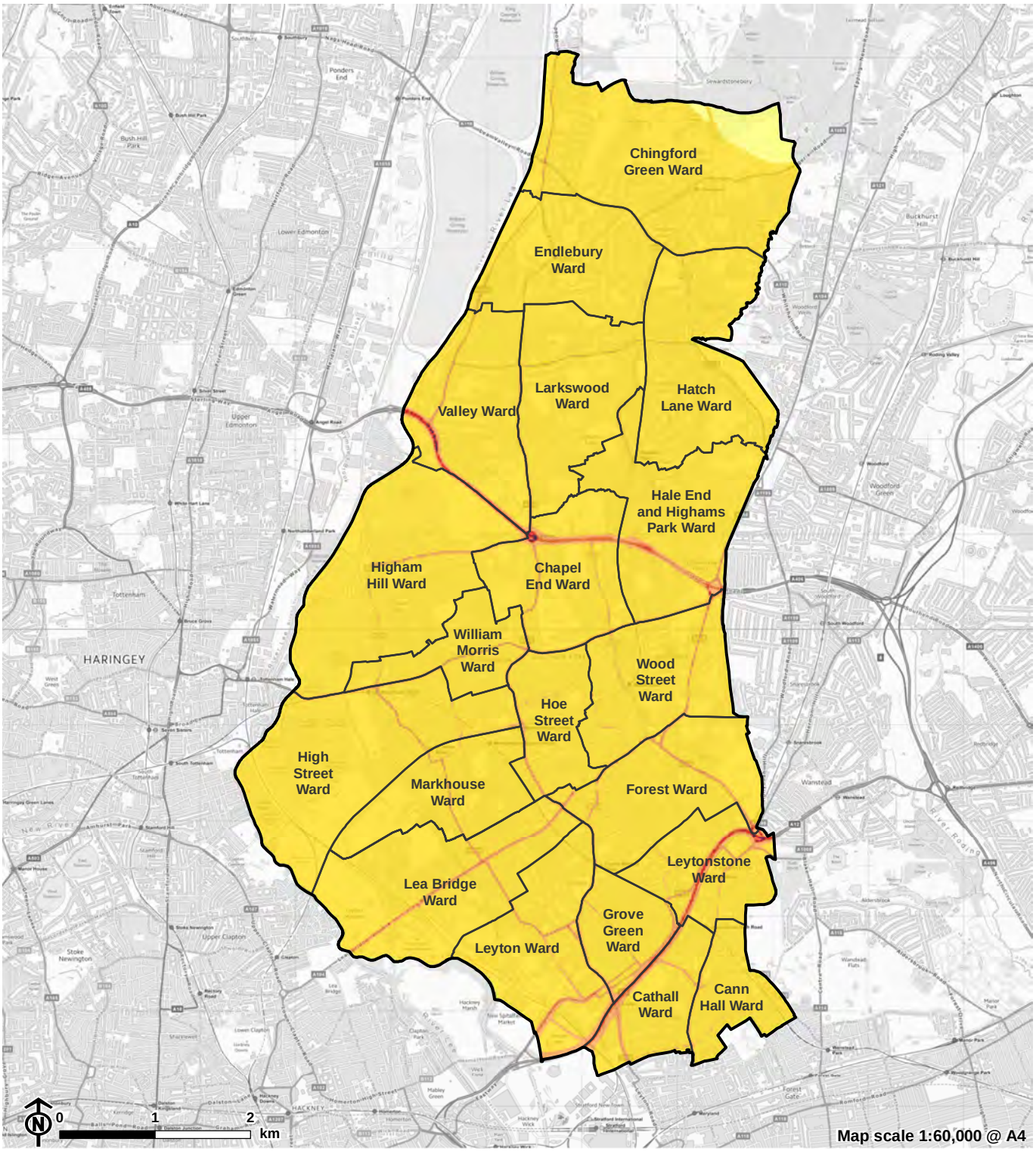
3.63 A changing climate is also likely to exacerbate ecological issues related to tree pathogens and invasive species. Common Ash is the most abundant tree within the council owned tree stock, and large-scale losses may potentially occur as a result of Ash Dieback (*Hymenoscyphus fraxineus*), which is estimated to kill up to 95% of ash trees in the UK[59]. In addition, the majority of street trees are native species, which may be less suited to the changing climate than some non-native species, especially within the urban environment.

3.64 As a planning authority, Waltham Forest Council has a statutory duty under the Natural Environment and Rural Communities Act 2006 (NERC Act) *to 'have regard… to the purpose of conserving biodiversity.'* In order to ensure the future ecological resilience of the borough, there will be a need to increase the provisions which will allow for a diversity of species to thrive, as well as work to improve the connectivity of the green and blue infrastructure network. This is supported within national planning policy through the recognition of the 'Lawton Principles' of needing to ensure ecological networks are *'…more, bigger, better, and joined'.* Where appropriately planned and designed, the multifunctional nature of green and blue infrastructure means that other benefits may be derived alongside the conservation of biodiversity, such as flood mitigation and provision for recreation.

3.65 The borough includes areas of important and valuable wildlife habitat, and the changing climate, alongside pressure from increasing development and population, potentially threatens to degrade habitats and sites for conservation. Several designated sites in the borough such as Epping Forest SAC and Lee Valley SPA are particularly sensitive to several impacts relating to:

- Increasing visitor pressure (e.g. from walking and dog walking);
- Poor air quality; and
- General 'urban effects' (e.g. increases in pollution events; construction effects, invasive species and increased likelihood of wildfires)

[57] RSPB (2016) State of Nature
[58] UK National Ecosystem Assessment (2011) http://uknea.unep-wcmc.org
[59] https://www.woodlandtrust.org.uk/trees-woods-and-wildlife/tree-pests-and-diseases/key-tree-pests-and-diseases/ash-dieback/



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Source: OS, GLA

Figure 3.6: Annual mean PM2.5 concentrations from LAEI 2016

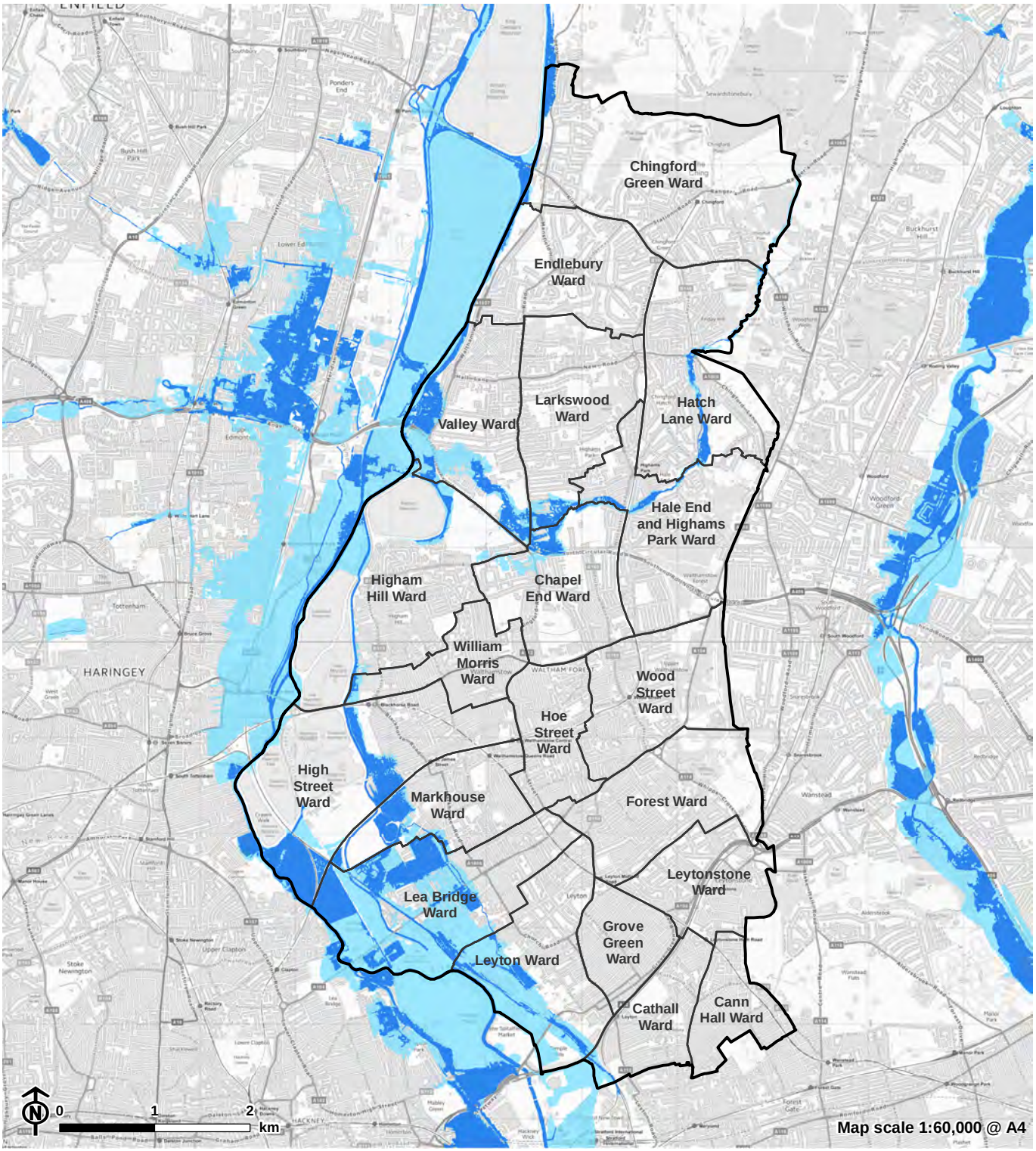
Waltham Forest Boundary
Ward boundary

PM2.5 (µg/m³)

- < 16
- 16 - 19
- 19 - 22
- 22 - 25
- 25 - 28
- 28 - 31
- 31 - 34
- 34 - 37
- 37 - 40
- 40 - 43
- 43 - 46
- 46 - 49
- 49 - 52
- 52 - 55
- 55 - 58
- > 58

This map is based on the NO2 emissions and ground level concentrations published as part of the LAEI 2016.

Sourced: https://data.london.gov.uk/dataset/laei-2016---borough-air-quality-data-for-llaqm



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CB:MB EB:Beetham_m LUC FIG3_7_10678_r0_Fluvial_flood_risk_A4P 04/12/2019
Source: OS, EA

Figure 3.7: Fluvial Flood Risk

- Waltham Forest boundary
- Ward boundary
- Flood zone 2*
- Flood zone 3**

*Flood Zone 2: Land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding (1% - 0.1%), or between a 1 in 200 and 1 in 1,000 annual probability of sea flooding (0.5% - 0.1%) in any year.

**Flood Zone 3: Land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%), or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.

Waltham Forest

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Source: OS, EA

Figure 3.8: Surface Water Flood Risk

Waltham Forest boundary

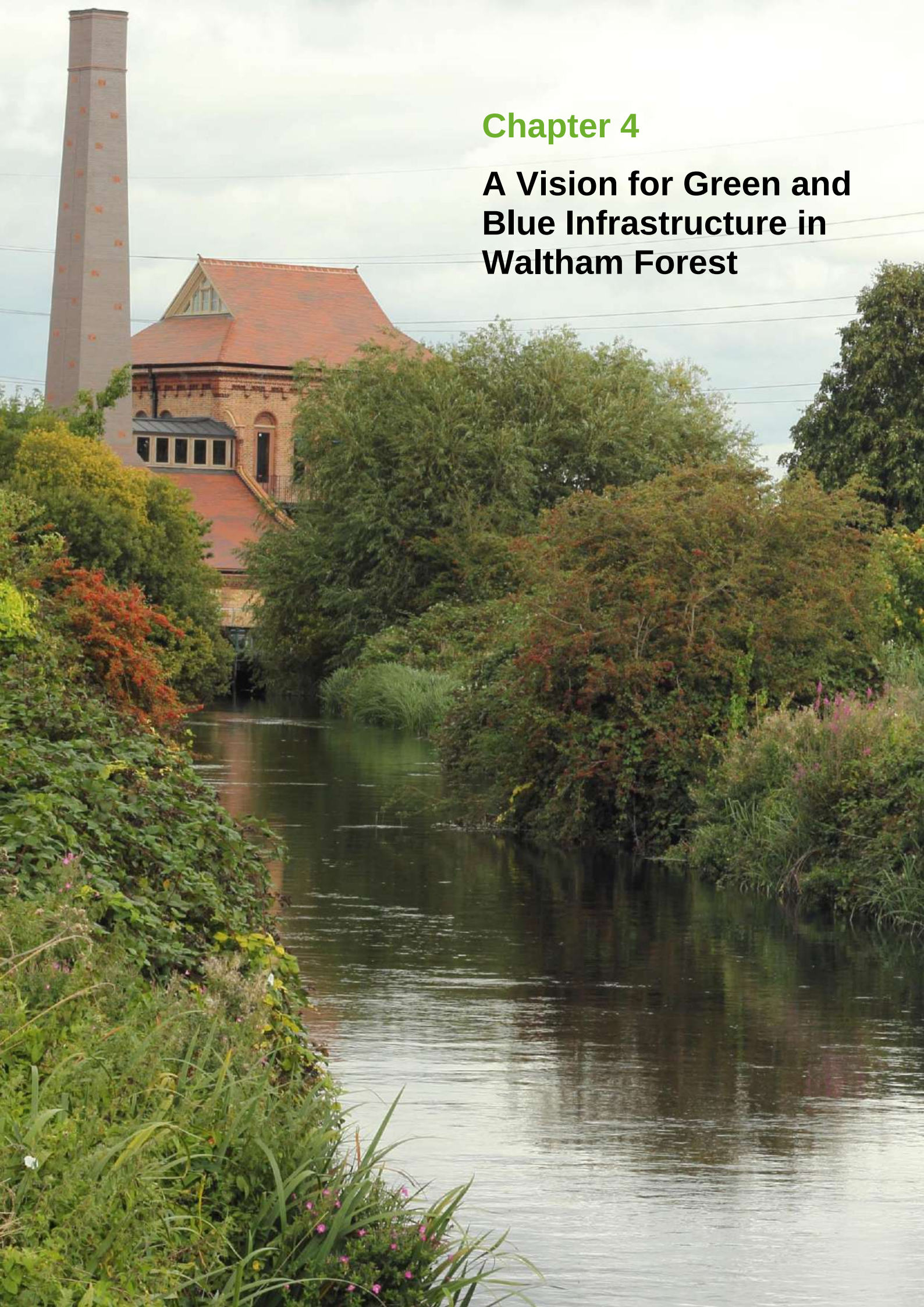
Ward boundary

Risk of Flooding from Surface Water

Flood extent risk for a 1 in 30 year event

Flood extent risk for a 1 in 100 year event

Flood extent risk for a 1 in 1000 year event



Chapter 4

A Vision for Green and Blue Infrastructure in Waltham Forest

Chapter 4
A Vision for Green and Blue Infrastructure in Waltham Forest

Vision

4.1 A vision has been developed for the green and blue infrastructure network within Waltham Forest. The vision provides a focus for enhancing and strengthening of the network **over the next ten years**.

The network of open spaces, green corridors, habitats, rivers corridors, water and urban greening features (The Green and Blue Infrastructure Network) will be well connected, conserved and resilient to the pressures of a changing climate and growing population.

Green and blue infrastructure within Waltham Forest will be considered equally alongside other forms of 'grey' or 'hard' infrastructure as integral to ensuring sustainable growth and a good quality of life for local communities.

Green Infrastructure themes

4.2 In order to establish green and blue infrastructure principles and policy recommendations to achieve the vision, the following section of the report first explores the green and blue infrastructure network in the borough. This has been divided into several 'themes', which provides a useful framework to understand and plan for green and blue infrastructure in Waltham Forest. The themes are:

- **Access and connectivity:** *Permeable landscapes for sustainable travel, access to areas for recreation and wildlife.*
- **Biodiversity and conservation:** *Connected and conserved, resilient networks of habitats across the borough.*
- **Blue infrastructure:** *Rivers and water bodies considered at a landscape scale.*
- **Open space:** *Provision of easily accessible high quality, well designed multi-functional open spaces*.
- **Urban greening and public realm:** *Vegetation incorporated into the fabric of the urban environment.*
- **Culture and heritage:** *Recognising and considering the historic environment and culture of the borough.*

4.3 The **key assets** relevant to each theme are explored, followed by a summary of key **considerations** and **opportunities** that have been identified.

4.4 Key findings from the various strands of the consultation programme are considered under each of the relevant themes. A summary of all consultation findings is included within a **separate volume.**

4.5 Following the exploration of the green and blue infrastructure themes, **principles** for delivery and projects are set out.

4.6 Figures 4.1 and 4.2 provide a summary of the key considerations and opportunities for enhancement of the green and blue infrastructure network in Waltham Forest.

4.7 Chapter 11 sets out a series of actions and projects. These have been developed through the analysis and principles set out in the following chapters.

Figure 4.1: Key considerations

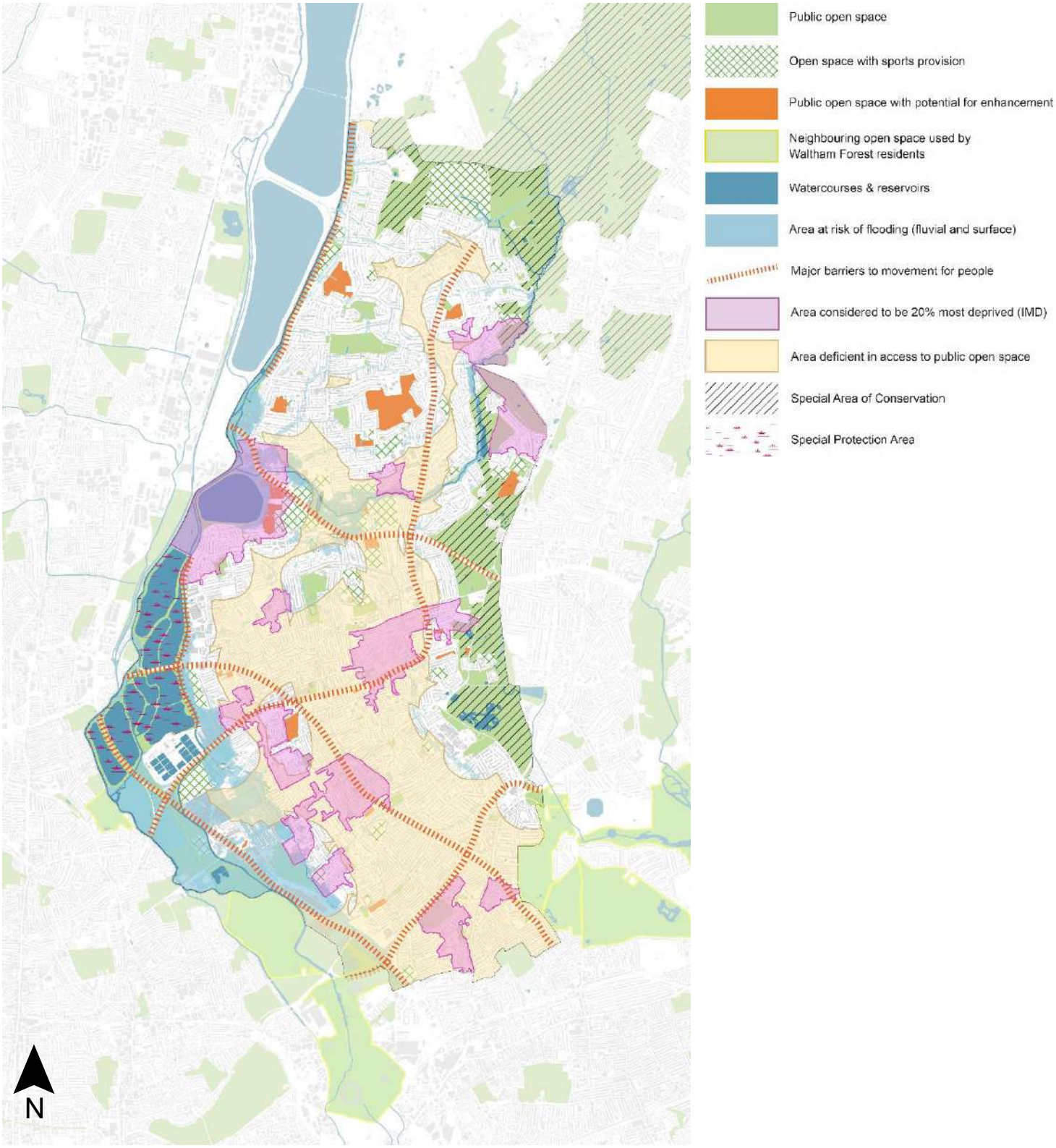
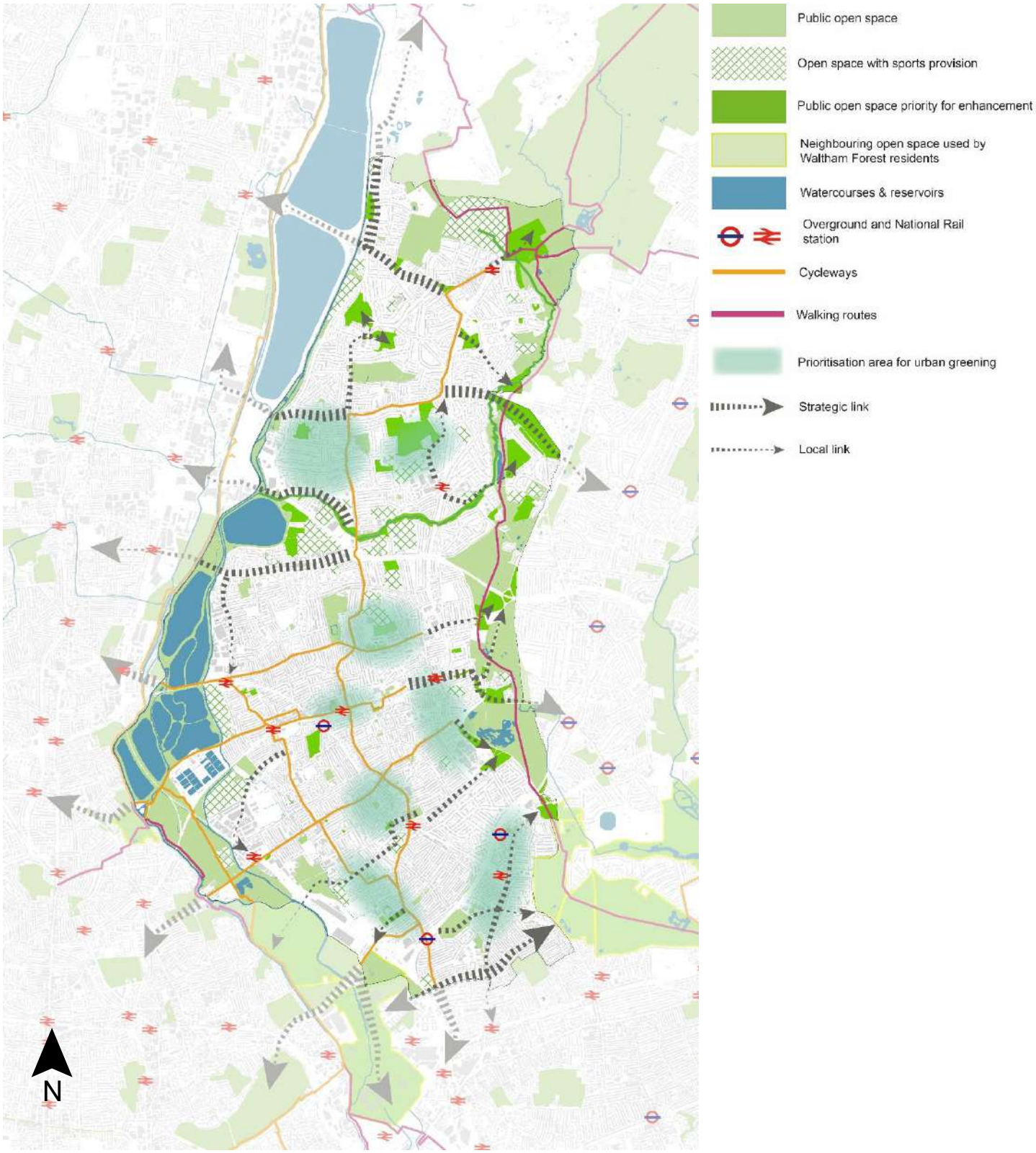


Figure 4.2: Key opportunities



Chapter 5

Access and Connectivity

Chapter 5
Access and Connectivity

5.1 Access to open space and areas for recreation, together with good connectivity between assets, provides a range of benefits related to health and well-being. Providing and promoting safe cycling and walking routes across the borough can maximise the benefits provided by open space, especially in areas where local open spaces are small or few in number.

5.2 Facilitating active travel across the borough has the potential to reduce car use; easing congestion and improving air quality. It will also help to achieve the aim set out in the Mayor of London's Transport Strategy for 80% of all trips in London to be by foot or bike by 2041[60].

5.3 Good connectivity between assets is also important to ensure a strong network of habitats across the borough. This is picked up further under 'Biodiversity and Conservation'.

Waltham Forest's Mini-Holland Scheme

In 2013 Waltham Forest was one of three London boroughs to receive £30 million in funding from the Mayor of London as part of the Mini-Holland scheme.

This funded a borough-wide scheme to create safer roads and pedestrian routes, as well as the development of 'Enjoy Waltham Forest'; a project which promotes walking and cycling in the borough.

Research undertaken for the borough indicates that more people in Waltham Forest are cycling following the implementation of the scheme. 17% of respondents to the 2016 resident insight survey indicated that they cycle (compared to 12% the previous year), with 73% indicating that they cycle once per week (compared to 62% the previous year).

Key assets

Cycling network

5.4 A local cycling grid ('quiet cycle grid') has been instigated as part of the Mini-Holland Scheme, this has included both 'hard' infrastructure and urban greening to improve the environment for those who walk or cycle. Over five years the scheme delivered:

- 22km of segregated cycle lanes

[60] Mayor of London (2018) Mayor's Transport Strategy

- 40 modal filters to prevent local streets being used as car thoroughfares
- 100 junction improvements
- 700 trees
- 15 'pocket parks'

5.5 The Waltham Forest Mini-Holland network focusses on the busiest cycle routes, and those that are most likely to get busier. The network consists of the following key routes (as shown in **Figure 5.1**):

- Forest Road
- Lea Bridge Road
- Leyton to Blackhorse Road
- Leyton to Chingford
- Walthamstow Marsh to Walthamstow Village

5.6 Several Transport for London Cycleways and Quietways run through or nearby the borough boundary, including C23, Q6 and Q2.

5.7 A section of National Cycle Network Route One runs across the south western corner of the borough. This section of the route runs from London Dockland at the Thames, up to the Lea Valley.

5.8 The 3km 'wetland to wetland' green corridor 'quietway' connects Woodberry Wetlands in Hackney with Walthamstow Wetlands in the south west of the borough.

Promoted walking routes

5.9 Epping Forest Centenary Walk is a promoted walking route running 15 miles between Manor Park and Epping, along the eastern boundary of the borough, shown on **Figure 5.1**.

5.10 Several routes from the Walk London Network, promoted by TFL and the London boroughs, adjoin or pass through Waltham Forest, including:

- The Capital Ring on the western boundary
- Lea Valley Walk
- The London Loop, which joins the borough at Chingford

Other linear access routes, green and blue corridors

5.11 Several watercourses in the borough provide linear access routes and some habitat connectivity between open spaces. The key watercourses have a combined length of around 44km and include the Rivers Lea and Ching, Coppermill Stream and Dagenham Brook.

Consultation findings

Consultation with **neighbouring local authorities** has highlighted several opportunities to improve connections and partnership working relating to access. These particularly relate to addressing barriers to access.

There will be opportunities to strengthen links between Waltham Forest and Enfield at Edmonton Leeside (industrial area) and Meridian Water Regeneration Area, which is west of South Chingford.

Links could be strengthened between Springfield Park in Hackney towards Walthamstow Wetlands, including improvements or alternative routes avoiding the low bridge at Coppermill Lane. The footbridge over the River Lea at Springfield Park is a key access link and is heavily used.

Links could be strengthened between Hackney Marshes and Leyton Jubilee Park. The footbridge over the railway at Orient Way is not accessible to buggies and pushchairs and signage could be improved.

The **public consultation** found that 77% of respondents mainly travel to green spaces on foot, 12% by car and 5% by bike.

Considerations

5.12 There are several large roads that act as barriers and reduce connectivity and access to the green and blue infrastructure network in some locations. These include:

- The A12, in the south east of the borough, which runs from Stratford to Wanstead Flats.
- The North Circular Road (A406), which runs from South Chingford towards the adjacent borough of Redbridge to the east.

5.13 There are several railway lines that act as barriers and reduce connectivity in places, including:

- The Overground running from Blackhorse Road and Wanstead Park; and north-south between St James's Street and Chingford.
- The Central Line in the south eastern corner of the borough from Leyton towards Snaresbrook.
- Greater Anglia line running from Stratford through Lea Bridge in the south west corner of the borough.

5.14 Significant sections of the western side of the borough are bound by large water bodies included within Lea Valley Regional Park. In some areas this restricts connectivity out of the borough to the east. There are several linear access routes along waterways, however, some of these may need

enhancement to facilitate good access to a wider range of users.

5.15 Several areas have poor access to several types of open space, with many areas only having access to relatively small open spaces.

5.16 There is a need to consider the recreational pressure on Epping Forest SAC and Lee Valley SPA. It may be appropriate to mitigate this through improving access within and to other less ecologically sensitive areas. Such interventions would need to provide a sufficiently attractive and suitable alternative 'offer' to attract visitors away from the SAC and SPA. This may require further understanding of specific user needs and preferences relating to facilities, accessibility, landscape features and dog walking.

5.17 There are numerous existing national and regional promoted strategic walking and cycling routes that connect to parts of the borough. Further opportunities to strengthen connectivity to surrounding areas may be best focused on known areas of growth and regeneration along the borough's boundary.

5.18 Areas with high levels of deprivation may be associated with poor access to open space and poor quality living environment. This can be partially addressed through general improvements to the quality of existing access routes and by providing additional opportunities for active travel to social and economic 'hubs' and transport links.

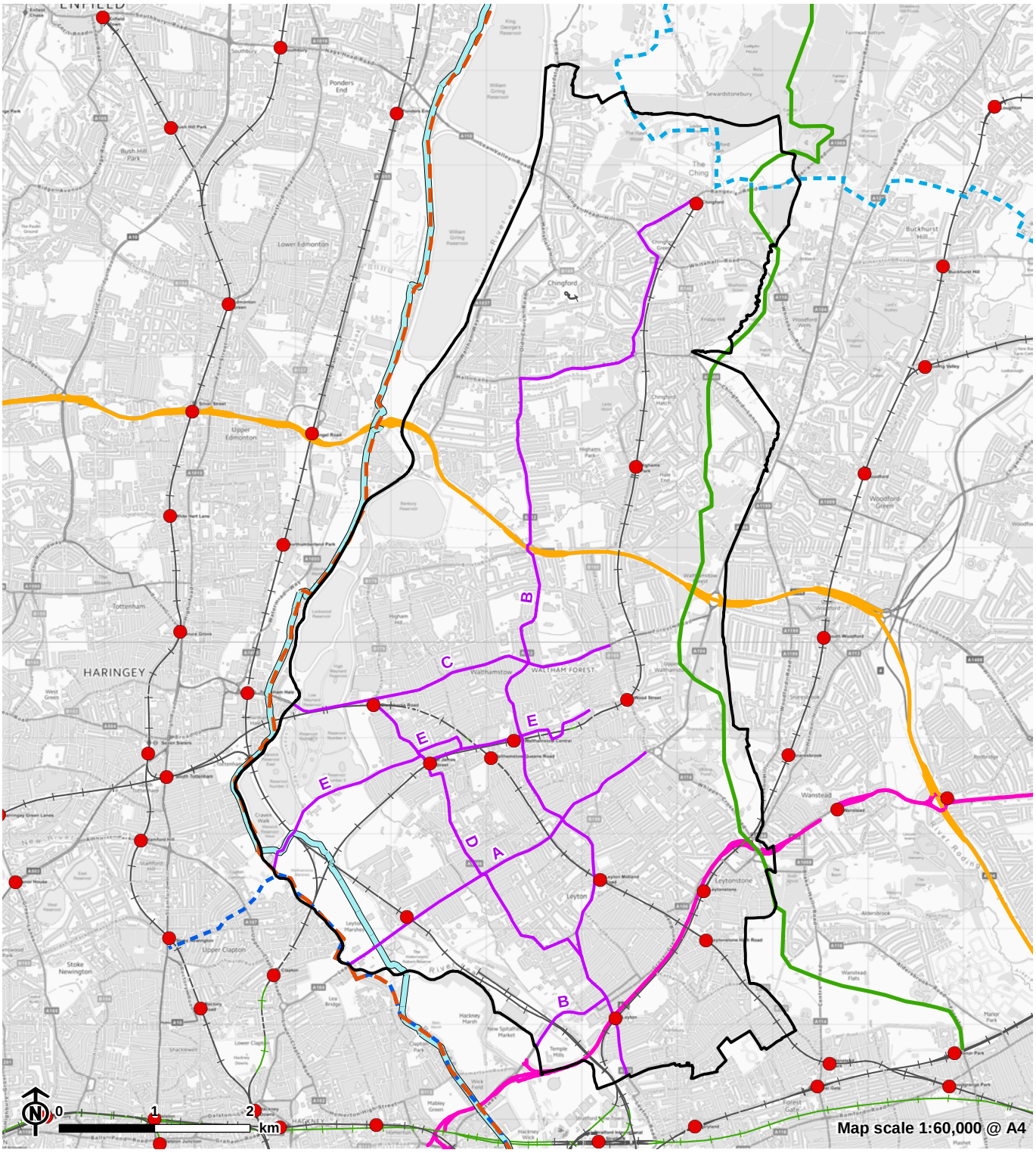
5.19 Additional funding has been secured from TfL for further enhancements and implementation of 'Enjoy Waltham Forest' principles at Coppermill Lane, St James Street, and Blackhorse Road station to Markhouse Junction (including Coppermill Lane to the entrance of Walthamstow Wetland and connecting to the recently completed townscape initiative at St James Street.) This works cost £2.5 million.

5.20 Development and growth several locations provide opportunities for securing investment in further public realm and access improvements, including within Leyton Green and West Leyton Growth Areas.[61] A £3 million bid has been submitted to develop further proposals in the Leyton Green area.

Principles: Access and connectivity

- Promote and deliver Enjoy Waltham Forest principles through a range of measures. This will include working with partner organisations and neighbouring authorities to identify opportunities to facilitate more walking and cycling across Waltham Forest for leisure and commuting.
- Design, implement and maintain the active travel network to ensure that the whole community, including young people and the most vulnerable in society, have opportunities to travel safely and sustainably. Safe, traffic-free environments should offer easy, direct access for people of all demographics and abilities, helping to promote health and well-being within the borough.
- New development will be required to consider access and connectivity within proposals at an early stage of the design process and ensure the layout of built development, open spaces and public realm works to address any identified barriers to access and maximise opportunities for walking, cycling and other forms of active travel.
- New cycle paths and footpaths will link into and improve the connectivity of the existing Mini-Holland network, Cycleways, Quietways, National Cycle Network and public transport links.
- Existing links and 'gateways' to promoted walking routes, key open spaces and public rights of way will be protected, enhanced and considered within place making.
- Rivers and other green corridors will be recognised for their potential to provide linear access routes, such as the River Ching and the Dagenham Brook. Special consideration should be given to well-travelled routes for commuting and providing access to strategically important open spaces within and around the borough.
- Landscaping and urban greening will be recognised as performing an important role in creating an environment in which people want to walk and cycle. Proposals which connect existing green routes for the benefit of people and wildlife will be encouraged.
- Improved cycle and pedestrian links through industrial areas will be explored, particularly within strategic industrial locations. This will encourage sustainable commuting whilst also improving resident's health and well-being.

[61] https://democracy.walthamforest.gov.uk/documents/s60599/appendix%20A%20-%20transport%20strategy%20050318.pdf



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Source: OS, LBWF, LDWA, TFL, Sustrans

Figure 5.1: Access and Connectivity

- Waltham Forest boundary
- Railway station
- Railway track
- Railway tunnel

Main roads

- A12
- A406

- National Cycle Route
- Epping Forest Walk

Walk London Network

- Captial Ring
- Lee Valley Walk
- London Loop

- The Mini Holland Network

A: Lea Bridge Road Cycle Route
B: Leyton to Chingford Cycle Route
C: Forest Road to Wood Street Cycle Route
D: Leyton to Blackhorse Road Cycle Route
E: Bloomsbury to Walthamstow Quietway

Chapter 6

Biodiversity and Conservation

Chapter 6
Biodiversity and Conservation

6.1 Increasing urbanisation and a changing climate are the most significant pressures on natural habitats and can negatively impact on biological diversity.

6.2 A significant amount of growth and transformation is expected within areas of the borough and in planning for new this growth and development there is a need to understand the contribution that the existing green and blue infrastructure network makes towards conservation and biodiversity. It will be increasingly important to ensure habitats in the borough are well connected and resilient to additional pressures (including a changing climate), and opportunities will need to be identified to create links between areas of habitat and enhance existing ecological networks.

6.3 Figures 6.1 – 6.3 show the location of assets designated for their ecological importance.

Key assets

6.4 The borough has 27 Sites of Importance for Nature Conservation (SINCs) covering around 900 hectares. Over 80% of this area is designated Metropolitan Grade SINCs.

Table 6.1: SINCs within Waltham Forest

SINC grade	No. of sites.
Metropolitan	3
Borough (grade 1)	4
Borough (grade 2)	6
Local	14

6.5 Large areas of ancient woodland run along the eastern boundary of the borough at Epping Forest. Blocks of ancient woodland are also seen in the centre of the borough at Larks Wood and Ainslie Wood, and to the north of the borough near Chingford Golf Course.

6.6 Much of Epping Forest is a designated SAC and SSSI.

6.7 The reservoirs in the south west of the borough within Lee Valley Regional Park are covered by international (Ramsar and Special Protection Area (SPA)), national (SSSI) and local (SINC) designations. Chingford Reservoirs designated SSSI site is located along the western borough boundary and covers King George's and William Girling Reservoirs.

6.8 Several UK priority habitats have been identified in Waltham Forest. This includes around 20 hectares of floodplain grazing marsh at Walthamstow Marsh, and around 160 hectares of wood pasture of Epping Forest within the borough boundary.

6.9 London Priority habitats identified in the borough include acid grassland, churchyards and cemeteries, parks and urban greenspaces, private gardens rivers and streams, standing water and woodland.

6.10 The combined length of rivers and streams in the borough is around 44 km.

6.11 There is around 1,200 hectares of publicly accessible open space in the borough which provide a range of habitat types of varying quality.

Consultation findings

The **public consultation** highlighted the importance of areas for wildlife for the borough's residents.

91% of respondents agree or tend to agree that more areas within the borough's green spaces should be managed to increase biodiversity and support pollinators.

The **internal stakeholder consultation** highlighted several recent habitat creation and enhancement measures that have been undertaken in the borough's parks and open spaces. This includes wildflower seed sowing at over ten sites, establishment of relaxed mowing regimes within 13 open spaces, aquatic habitat enhancements at six sites and pollinator friendly ornamental planting.

Consultation with **neighbouring authorities and external stakeholders** highlights the need to continue partnership working to address several cross-boundary issues such as managing impacts from visitor pressure on Epping Forest and strengthening habitat connectivity to out of borough sites.

Considerations

6.12 Housing growth and climate change threatens to place additional pressures on the borough's habitats and wildlife.

6.13 The Council owns and manages several SSSIs and has a duty to conserve and enhance these areas. White House Woods (part of Epping Forest SSSI) has been assessed as being in 'unfavourable condition' and there is a requirement to undertake effective and active conservation management where necessary.

6.14 As a ‘competent authority’ within the recreational ‘Zone of Influence’ for Epping Forest SAC, the council are required to take account of Natural England's Epping Forest mitigation advice and work in partnership with the City of London and other surrounding local authorities to help deliver mitigation action relating to the SAC. This includes the Epping Forest 'Interim Mitigation Strategy' and any future mitigation measures.

6.15 Epping Forest SAC and Lee Valley SPA/Ramsar sites are European designated sites. A Draft Habitats Regulations Assessment (HRA) for Waltham Forest has been produced which assesses the potential effects of recreational pressure, water pollution, water demand, air pollution and urbanisation which the Draft Local Plan’s policies may impose on the SAC and SPA/Ramsar site. Waltham Forest’s Draft Local Plan facilitates population growth, as well as creating changes to infrastructure routes. Therefore, the HRA found that potential adverse effects in relation to recreational pressure were identified for Epping Forest SAC and that potential adverse urbanisation effects could occur on the SAC and SPA/Ramsar sites.

6.16 Possible adverse recreation effects include:

- Trampling by walkers and cyclists leading to soil erosion and compaction;
- Damage to veteran trees from climbing and trampling of their roots;
- Eutrophication from dog fouling;
- Challenges to grazing practices due to interactions between livestock and visitors;
- Damage to saplings causing issues with the tree stock;
- Harvesting by visitors;
- Disturbance to wildlife, including invertebrates such as the Stag Beetle for which the SAC is designated; and
- Disturbance to bird species for which the SPA/Ramsar site is designated.

6.17 The HRA and Natural England recommend the undertaking of an Epping Forest Suitable Alternative Natural Greenspace (SANG) Strategy which would need to be agreed before the Local Plan is adopted. SANGs will need to be delivered alongside Strategic Access Management and Monitoring (SAMM). Waltham Forest Council is committed to working with partners, The City of London Corporation and Natural England to develop such a strategy.

6.18 Natural England guidance states that a minimum of 8ha of SANGs should be provided for every 1,000 head of population increase. This is difficult to achieve within Waltham Forest as an urban London borough, especially as a SANG cannot be used for more than one designated site, in this case Epping Forest SAC and Lee Valley SPA/Ramsar site. A SANG

strategy will need to consider the capacity of existing green spaces and how networks can be improved and increased to enhance the visitor 'offer across the borough.

The Epping Forest SANG Strategy will need to consider:

- The location of suitable SANGs within the borough and surrounding areas;
- The number of dwellings which each SANG will provide mitigation for;
- Which existing green spaces within the borough will be enhanced to provide additional visitor capacity, including details on how this will be achieved. This could include increasing carrying capacity or through making improvements to existing footpath networks to enhanced connectivity to local green spaces; and
- The funding mechanism for the creation and future management of the SANGs.

6.19 To strengthen the protection of the two European sites, it is recommended that Epping Forest SAC and Lee Valley SPA/ Ramsar sites are considered in separate policies.

6.20 It is advised that Waltham Forest's Local Plan should include mechanisms to reduce the potential adverse impacts of urbanisation on both Epping Forest and the Lee Valley. These impacts can include an increase prevalence of fire, localised effects of construction, cat predation and fly tipping resulting in the spread of diseases and invasive species.

6.21 The borough's Biodiversity Action Plan is contained in **Appendix C** and a Pollinator Strategy/Action Plan is also being developed. These will set out priorities for enhancing biodiversity in the borough and should be aligned with the Green and Blue Infrastructure Strategy.

6.22 Several habitat corridors are recognised through SINC designation, such as Chingford to Walthamstow rail sides and the borough's river network.

6.23 Poor edge treatment and hard flood defences limits the ecological value of some of the borough's water courses. In addition, low water levels and recreational pressure at some water bodies, such as Hollow Pond at Epping Forest, and pollution events within rivers currently impacts on water and habitat quality.

6.24 Several landscape features reduce permeability of the landscape for some species and create barriers, creating poor connectivity between habitat areas. This includes several major roads such as the A12 and the North Circular (A406).

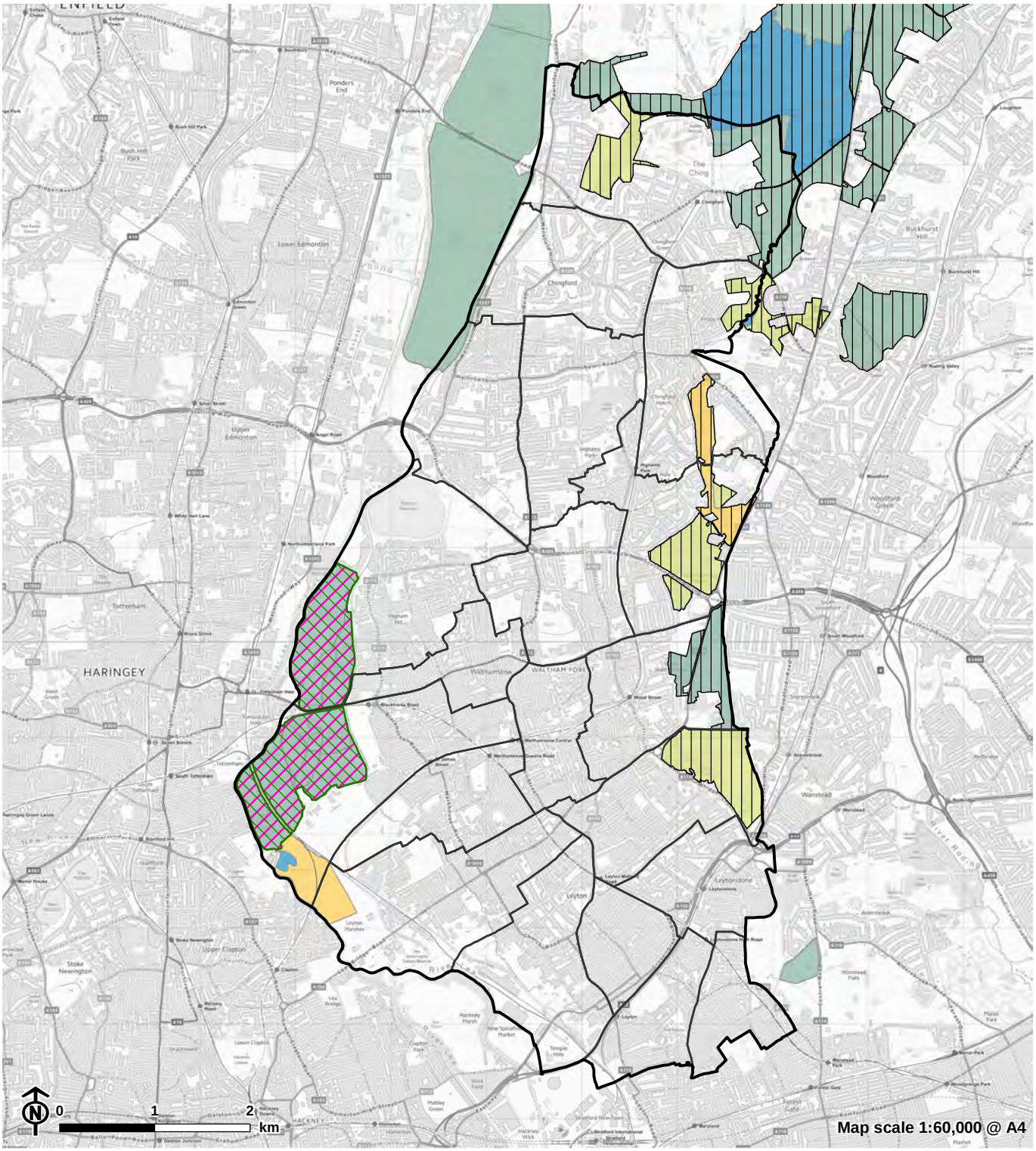
Principles: Biodiversity and conservation

- The network of habitats of local, regional and international importance within Waltham Forest will be protected and enhanced through appropriate management, and the creation of additional habitat areas. Up to date habitat action plans and species action plans will provide a focus for identifying green and blue infrastructure priority projects in the borough.
- Planning policies and decisions within Waltham Forest will continue to be informed by guidance provided by Natural England relating to Epping Forest SAC and Lee Valley SPA. Appropriate measures will be taken to reduce air quality impacts where required. Opportunities will be sought to create alternative habitat areas on the site, increasing ecological resilience.
- Appropriate measures will be taken to reduce the impacts of urbanisation on European designated sites including reducing the risk of fires, mitigating the local effects of construction and reducing littering/ fly tipping.
- By undertaking further study and research, the council will deliver a borough-wide SANGs strategy which will mitigate recreational pressures on Epping Forest SAC and Lee Valley SPA/Ramsar site in the face of population growth and development. This will primarily consist of identifying improvements to existing green spaces to enhance their visitor capacity.
- Opportunities will be sought to work in partnership with neighbouring authorities, the City of London Corporation and Lee Valley Regional Park Authority to consider biodiversity and conservation at a landscape scale.
- Where necessary, opportunities will be sought to improve the habitat quality of designated landscapes that are deemed to be in unfavourable condition. This may for instance be associated with future development; applying Biodiversity Net Gain principles through planning.[62]
- Areas of growth and development in the borough will help to secure improvements to the ecological value of the green and blue infrastructure network by creating links between existing habitat areas and additional habitat through appropriate site design, habitat creation, landscaping and other forms of urban greening. Good quality, ecologically sensitive site design will always be required in addition to any required 'off-site' measures (such as improvements

[62] https://www.gov.uk/guidance/natural-environment

to existing habitat areas, which will be focused on Priority Habitats and Species.)

- Development proposals will be required to consider linear habitat features and green corridors as part of site design and ensure these are strengthened through appropriate landscaping and habitat creation. The creation of multi-functional urban greening interventions, areas for recreation and Sustainable Urban Drainage Systems that provide biodiversity benefits will be promoted.
- Habitat creation and ecologically sensitive management within the borough's open spaces will continue to be promoted, supported and delivered through the Open Space Strategy and action plan.



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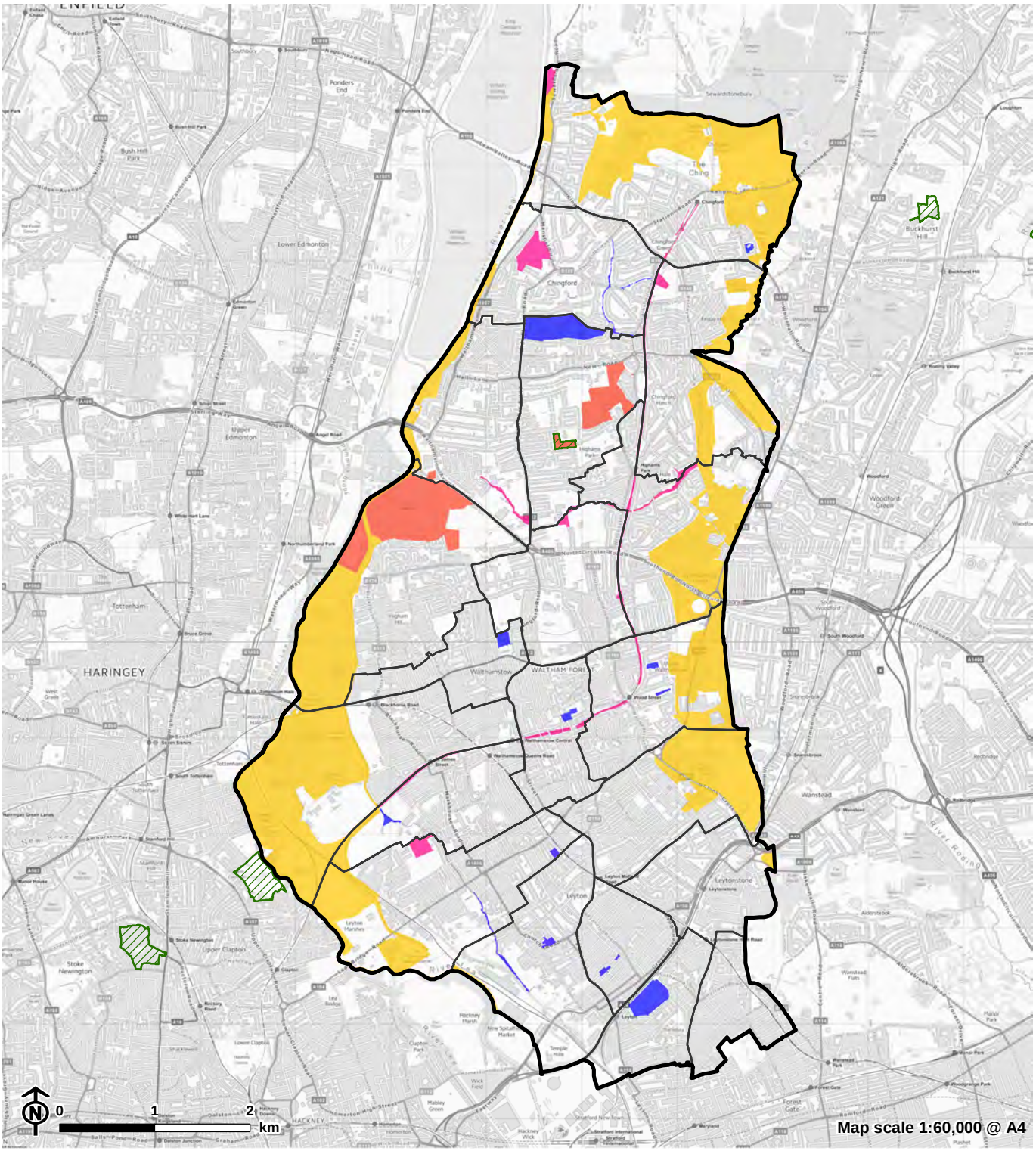
Source: OS, NE

Figure 6.1: National and International Ecological Designations

- Waltham Forest boundary
- Ward boundary
- Ramsar
- Special Area of Conservation
- Special Protection Area

SSSI condition

- Destroyed
- Part destroyed
- Unfavourable declining
- Unfavourable no change
- Unfavourable recovering
- Favourable



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Source: NE, London Borough of Waltham Forest

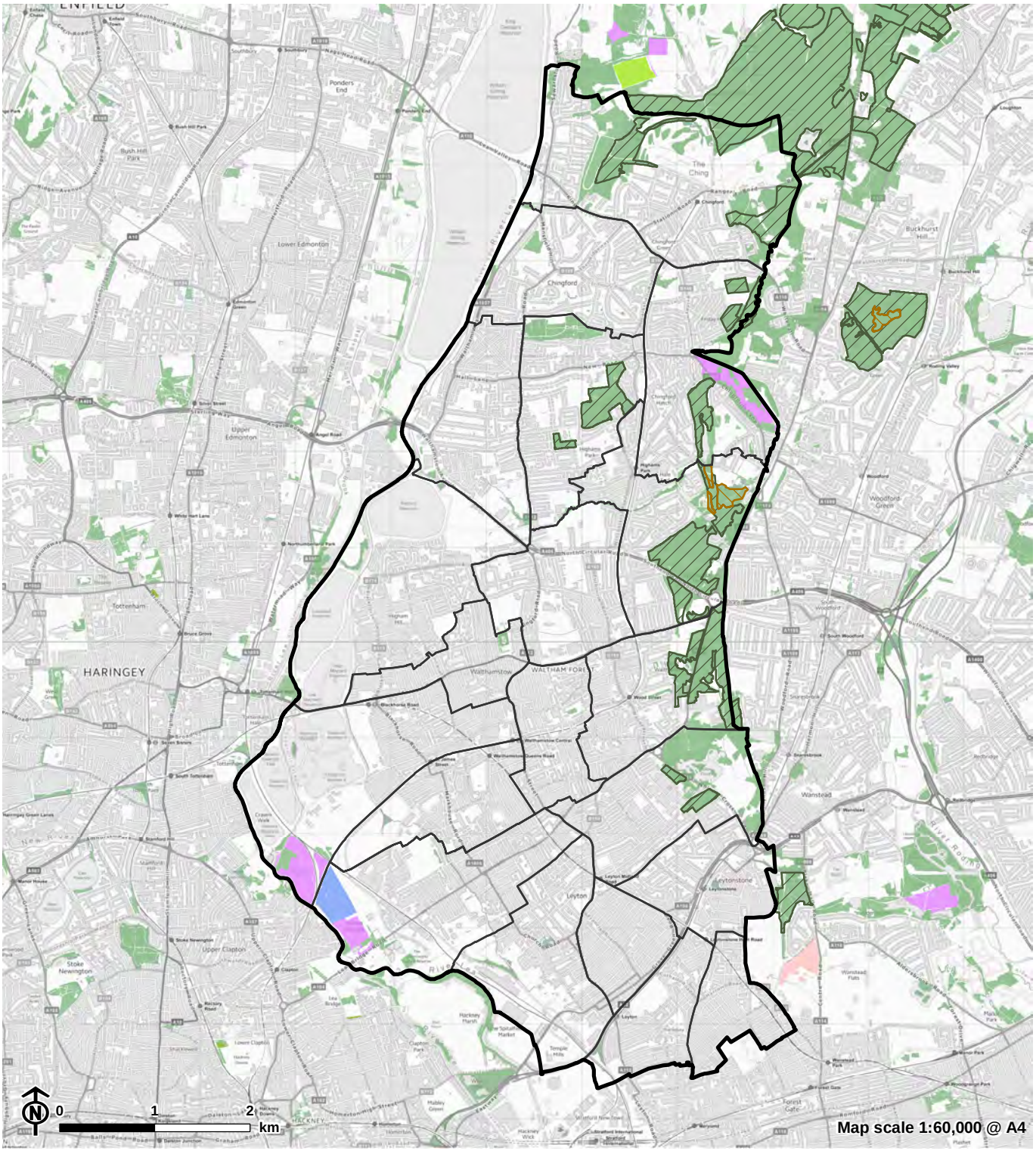
Figure 6.2: Regional and Local Ecological Designations

- Waltham Forest boundary
- Ward boundary
- Local Nature Reserve

Site of Importance to Nature Conservation*

- Site of metropolitan importance to nature conservation
- Site of grade 1 borough importance to nature conservation
- Site of grade 2 borough importance to nature conservation
- Site of local importance to nature conservation

*Data taken from the Waltham Forest Open Space Strategy. It may therefore need updating.



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CB:MB EB:Beetham_m LUC FIG6_3_10678_r0_Habitats_A4P 04/12/2019
Source: OS, NE

Figure 6.3: Ancient Woodland and Priority Habitats

Waltham Forest boundary

Ward boundary

Ancient Woodland

Ancient & semi-natural woodland

Ancient replanted woodland

Priority Habitat Inventory

Coastal and floodplain grazing marsh

Deciduous woodland

Good quality semi-improved grassland

Lowland dry acid grassland

Lowland meadows

Traditional orchard

Chapter 7

Blue Infrastructure

Chapter 7
Blue Infrastructure

7.1 Blue infrastructure plays a fundamental role in managing flooding, as well as enhancing biodiversity and enjoyment of public open space. With climate change contributing to an increased frequency and magnitude of extreme weather events, and therefore heightening the risk of localised fluvial and surface flooding, the need for a functional relationship between green and blue infrastructure has never been greater.

7.2 Blue corridors can host a variety of habitats and species of local and national importance. This is particularly important in Waltham Forest, where urbanisation and development can result in fragmentation of habitats and put pressure on wildlife.

7.3 Figure 7.1 shows the locations of blue infrastructure assets.

Key assets

7.4 The River Lea flows along the western boundary of Waltham Forest, through Lee Valley Regional Park, and is the borough's primary source of blue infrastructure. Running along the same corridor is the Lee Navigation, a canalised river, which together act as the main source of flood risk within the borough. Most of the discharge from the River Lea is diverted into the Lee Navigation to maintain water levels through a series of locks.[63]

7.5 The River Lee Flood Relief Channel is located to the east of the River Lea, in the lower reaches of the Lea Valley. It plays a vital role in reducing the flood risk within the densely populated neighbouring areas and since its construction in 1976 there have been no major floods within the borough[64]. The 18m wide and 3m deep channel is lined with concrete and for much of the year hold very little water. This is due to the channel only receiving water when the Lee Navigation is at capacity.

7.6 The Dagenham Brook and the River Ching are both tributaries of the River Lea, and as they flow through urban areas, are often culverted.

7.7 The Dagenham Brook is a heavily urbanised watercourse flowing from the River Lee Flood Relief Channel before merging with the River Lea and then re-joining the Lee Navigation. Spillways allow the brook to discharge water into

[63] Waltham Forest Council (2011) Level 2 Strategic Flood Risk Assessment

[64] Waltham Forest Council (2014) Local Flood Risk Management Strategy

the Relief Channel during periods of heavy rainfall as the channel is primarily fed by surface water.

7.8 The River Ching, or Ching Brook, flows south along the eastern boundary of Waltham Forest before crossing the borough and merging with the River Lea around the Banbury Reservoir. The channel runs culverted beneath roads and railways within Waltham Forest, including the North Circular Road (A406).

7.9 The River Lea is no longer tidal; however, its lower reaches have a tidal influence from the River Thames due to the flood defences at Three Mills Locks during high tides.

7.10 Sitting alongside the River Lea are a series of reservoirs. Further upstream, within the borough of Enfield, two major reservoirs feed the River Lea network, the William Girling Reservoir and the King George's Reservoir.

7.11 Within Waltham Forest itself there are seven reservoirs which exceed the Environment Agency's categorisation of 25,000m^3 of water, and therefore are subject to regulation under the Reservoir Act 1975. These include the Banbury, Lockwood, High Maynard, East Warwick, West Warwick, Walthamstow No. 4 and Walthamstow No. 5 reservoirs. Additional smaller reservoirs are also located here, and collectively make up the Walthamstow Reservoirs, providing drinking water for 3.5 million people[65].

7.12 All reservoirs within Waltham Forest are classified as 'non-impounding', meaning earth embankments form all sides of the body of water.

7.13 The complex of reservoirs, excluding Banbury Reservoir, is designated as a SSSI, although it is currently deemed to be in an 'unfavourable but recovering' condition.

7.14 The Walthamstow Reservoirs and their immediate surroundings now make up the Walthamstow Wetlands, a nature reserve opened to the public in October 2017. As well as providing an important habitat for wildlife, including rare waterfowl and birds of prey, the reserve hosts a range of recreational opportunities including cycling, walking, fishing, birdwatching, public art, a visitor centre and a café.

7.15 The opening of the reserve was made possible through a partnership between Thames Water, the landowner, London Borough of Waltham Forest, the grant holder, and London Wildlife Trust, the conservation delivery partner.

7.16 The Coppermill Stream in the Lea Valley and numerous unnamed ditches make up a network of ordinary watercourses which traverse the borough.

Consultation findings

Consultation with **external stakeholders** indicates that there are further opportunities to engage communities in river restoration and improvements. Most opportunity for this may be along the River Ching.

The Environment Agency, in partnership with Thames 21, have identified a series of potential flood storage sites within a wide study area at South Chingford. These sites are within open spaces and would provide multiple benefits such as improvements in river water quality.

The Environment Agency are proposing and testing the feasibility of several flood storage schemes within open spaces in the borough.

Consultation with **neighbouring authorities** has highlighted opportunities for partnership working and improvements to the blue network at Edmonton Leeside and Meridian Water Regeneration Area adjoining the western boundary.

Considerations

Flooding

7.17 The concentration of Waltham Forest's blue infrastructure being in the Lea Valley means fluvial flood risk is generally focussed in the west of the borough, with an exception of the River Ching Corridor.

7.18 Managing flooding from the main rivers and reservoirs mentioned within the Key Assets section falls under the responsibility of the Environment Agency.

7.19 The River Lee Flood Relief Channel is currently thought to withstand a 1 in 50-year flooding event. However, this is likely to reduce over time due to the increasing risks of climate change and urbanisation coupled with infrastructure deterioration[66]

7.20 The management of ordinary watercourses within the borough is the Council's responsibility as the Lead Local Flood Authority. This includes the clearing of ditches at Overton Road, Chingford Lane, Rangers Road, Oak Hill, Brookfield Path and Leyton Common Sewer. There are currently no records of flooding from ordinary watercourses in Waltham Forest[67], although this is not to say there is no future flood risk from this source.

[65] Walthamstow Wetlands (2019) https://walthamstowwetlands.com/about-us
[66] Waltham Forest Council (2011) Level 2 Strategic Flood Risk Assessment
[67] Waltham Forest Council (working draft) Surface Water Management Plan http://www.queenelizabetholympicpark.co.uk/-/media/lldc/local-plan/local-plan-examination-documents/borough-evidence-base-documents/beb16-waltham-forest-swmp.ashx?la=en

7.21 More localised forms of flooding, mainly due to surface water accumulation when drainage networks cannot cope during heavy rainfall, can be found throughout the borough.

7.22 There are 13 Critical Drainage Areas in Waltham Forest, which are at a more significant risk to flooding from surface water. Analysis of these results shows that 26,400 residential properties and 3,600 non-residential properties could be at risk of surface water flooding of a depth greater than 30mm during a rainfall event with a 100-year return period.

Water quality

7.23 The Lea Catchment is one of the most polluted in the country, with the Lea once being described as the UK's most polluted river[68]. A study done in 2012 found that the river network was being devastated by pollution[69].

7.24 In particular, the Dagenham Brook in Waltham Forest had extremely high levels of phosphates, indicating chemicals from people's homes and sewage was entering the watercourse. It was also noted that the River Ching could be healthy, however it is spoiled by chemicals and raw sewage.

7.25 Following a series of river cleans by Thames21 and the Marine Conservation Society, it was found that 78% of litter was single-use, with food wrappers, plastic bottles and plastic bags being the most commonly found items in the Thames' tributaries[70].

7.26 Community water quality monitoring has been introduced in the Lower River Lea. This has equipped members of the local community with the skills needed to identify, analyse, investigate and test scenarios of implementing green and blue infrastructure solutions which improve the health of their rivers[71].

7.27 In light of this analysis, Thames21 has recently re-wilded sections of the River Lea as it runs through Waltham Forest in a bid to improve the health of the watercourse using floating reedbeds. This not only provides valuable habitats but will help to improve the water quality.

7.28 Furthermore, Thames21 has carried out research into the relationship between river quality and road runoff across London, finding a clear link between the two. By mapping the surface water sewers which drain the roads and seeing where they intersect with green spaces, a shortlist of potential sites for constructed wetland interventions was created. Several of these potential sites have been identified across the borough.

7.29 Areas along the River Ching, which flows through the heart of Waltham Forest, have also been identified for re-wilding. This will not only improve water quality but provide habitats for aquatic species, create more green spaces for local people and provide opportunities for outdoor classrooms and walking and cycling routes.

7.30 The twelve spaces along the Ching could, if installed, enable the river to achieve good ecological status[72].

Opportunities

7.31 Promote and support ongoing community engagement in enhancements to the blue network.

7.32 There is a need for securing SuDS on new developments, particularly in identified CDAs. This will limit the risk of flooding from multiple sources including surface water, groundwater and watercourses.

7.33 Development should follow the drainage hierarchy, aiming to reduce run-off primarily at the source. Using SuDS should ensure off-site discharge rates meet greenfield runoff rates. This will help to enhance the long-term resilience of the borough to climate change and the associated increase in extreme weather events.

7.34 River corridors and the blue infrastructure network are valuable assets for promoting access routes, creating linear open spaces which encourage active lifestyles and improve cross-borough connectivity.

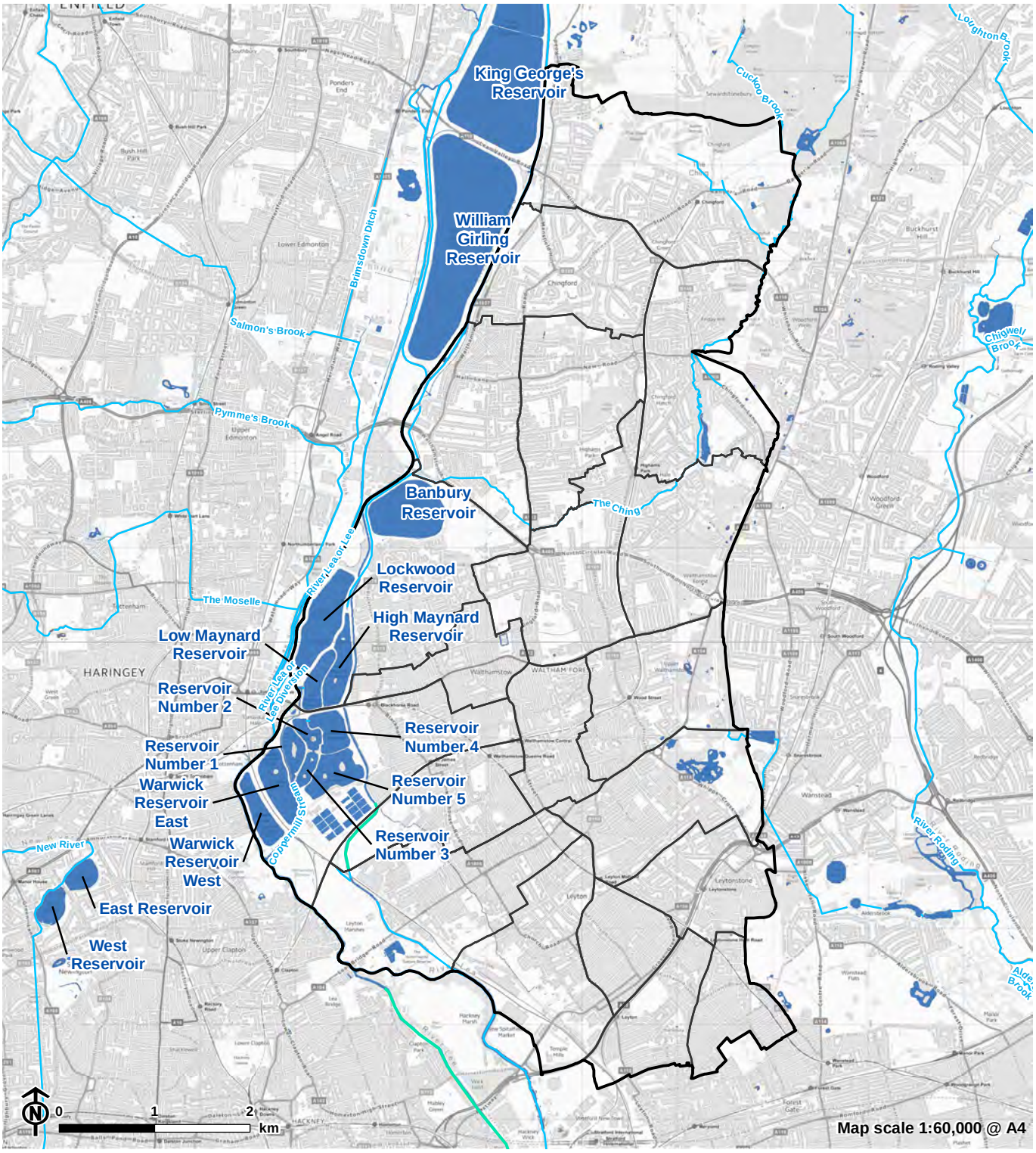
Principles: Blue infrastructure

- The borough will seek to de-culvert and 're-wild' the river corridors and water bodies of Waltham Forest in partnership with community groups, neighbouring authorities and environmental organisations. Opportunities will be sought to facilitate landscape scale projects that address issues related to flooding, biodiversity and water quality.
- The borough's network of rivers will be protected as key linear routes for wildlife and recreation.
- New development will be required to consider the borough's 'blue network' early within the design process to ensure opportunities are maximised to improve the ecological value of the network, access for recreation and naturalisation of the river corridor and associated habitats. New development should be appropriately set back from water courses,

[68] Thames21 (2018) https://www.thames21.org.uk/2018/09/thames21-rewilds-one-of-uks-most-polluted-waterways/
[69] Thames21 (2012) https://www.thames21.org.uk/2012/04/snapshot-of-east-londons-rivers-shows-they-are-choked-with-our-chemicals-and-sewage/
[70] Thames21 (2019) https://www.thames21.org.uk/2019/02/the-thames-polluted-by-single-use-items/
[71] Thames21 (2018) https://www.thamesriverstrust.org.uk/thames-21-community-water-quality-modelling-lower-river-lea/
[72] Thames21 (2018) https://www.thames21.org.uk/community-modelling/rewilding-the-ching-brook/

leaving an appropriate natural buffer to allow environmentally sensitive design and management treatments.

- Opportunities should be sought for the incorporation of Sustainable Drainage Systems (SuDS) within new development and retrofitting within existing, alongside the overall reduction of hard impervious surfaces.
- Appropriate intervention for naturalisation or re-wilding along the borough's river corridors shall be undertaken where possible. This may include reprofiling of riverbanks to encourage marginal vegetation and safe pedestrian access; additional planting for wildlife and to improve water quality; and installation of 'soft' flood management in favour of hard infrastructure. Where feasible, culverted, piped or covered waterways should be opened up.
- Opportunities will be sought to undertake enhancements of the blue network within the borough's open spaces and proposals will be supported that seek to improve the water quality of rivers and water bodies.



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CB:MB EB:Beetham_m LUC FIG7_1_10678_r0_Blue_Infrastructure_A4P 04/12/2019
Source: OS

Figure 7.1: Blue Infrastructure Assets

- Waltham Forest boundary
- Ward boundary
- Large waterbody

River network

- River
- Canal

Chapter 8

Open Space

Chapter 8
Open Space

8.1 Publicly accessible open space forms a major part of the green and blue infrastructure network and provides the residents of the borough with a variety of opportunities for recreation, play, sport and access to nature. Where well designed and managed, public open spaces are multifunctional and provide a range of benefits such as reducing surface water flooding, space for nature, enhancing landscape character and space for social interaction.

8.2 The network extends beyond the boundaries of open spaces that are managed for recreation and access. However, it is essential to consider any areas with deficiencies in access to good quality and value public open space when planning for green and blue infrastructure in order to identify opportunities to improve provision through a variety of means.

An **Open Space Needs Assessment** was undertaken in the borough during 2017. In 2019, the Needs Assessment was updated with new population data from the Greater London Authority (GLA), reflecting the 2017-based Borough Preferred Option (BPO) population projections (models run in June 2019). The assessment identified all publicly accessible open space in the borough, calculated the quantity and classified each site within 'typologies' and a hierarchy of sizes.[73] Using established national and regional guidance, the Needs Assessment set open space standards to inform planning policy and open space management. The standards comprise:

Quantity standards: The amount of publicly accessible open space that should be provided per 1,000 head of population

Quality and value standards: 'Value' relating to the range of features and facilities on each site and value to the local community; 'Quality' relating to the condition of features and facilities and management practices.

Accessibility standards: A set of straight line walk time distances that can be mapped to assess the accessibility of each type and size of open space.

The application of the standards across the borough provides the opportunity to both understand shortfalls in quantity of open space per neighbourhood area; and to cross reference quality, value and accessibility and

[73] Following the Mayor of London's Open Space Strategies: Best practice guidance

understand where there is most need for improvements to provision.

The findings of the Needs Assessment, alongside a comprehensive programme of consultation, informed the preparation of the 2019 **Open Space Strategy and Management** Strategy, which included an action plan to guide open space management in the borough over the next ten years.

8.3 Summary findings of the Needs Assessment are used to identify key assets and considerations. The full Needs Assessment document should be referred to for the methods employed, analysis and detailed findings.

8.4 Figures 8.1 – 8.3 show the location and performance of open space provision in Waltham Forest.

Key assets

8.5 The Open Space Needs Assessment identified 194 open spaces in the borough, covering a range of different 'typologies', see **Table 8.1**:. These open spaces cover an area of 1,200 hectares (ha).

Table 8.1: Typologies and number of open spaces identified in Waltham Forest

Primary typology	Number of sites
Parks and gardens	33
Natural and semi-natural greenspace	15
Green corridors	5
Amenity green space	22
Allotments	38
Cemeteries and churchyards	10
Civic Spaces	1
Provision for children and young people	21
Outdoor sports facilities	46
Disused sports facilities	*3*
Waltham Forest	**194**

8.6 Not all the sites listed in **Table 8.1:** are fully accessible to the public. **Table 8.2:** shows the quantity of publicly accessible open space in the borough by typology (excluding sites that are not publicly accessible or where accessibility was not assessed.)

Table 8.2: Area of publicly accessible open space by typology

Primary typology	Area (ha)
Parks and gardens	83.8
Natural and semi-natural greenspace	800.8
Green corridors	2.9
Amenity green space	5.9
Allotments (not audited but included)	51.4
Cemeteries and churchyards	36.5
Civic spaces	0.4
Provision for children and young people	2.1
Waltham Forest	**983.9**

8.7 The Council has designated seven open spaces as 'Premier Parks', which are considered to be the borough's most high-profile open spaces, these are:

- Abbots Parks
- Coronation Gardens
- Langthorne Park
- Leyton Jubilee Park
- Lloyd & Aveling Park
- Memorial Park
- Ridgeway Park

8.8 There are few large open spaces that fall completely within the borough boundary, with larger sites only falling partially within the boundary such as Epping Forest and Lee Valley Regional Park. Several large and strategically important open spaces are also located outside the borough to the south, including:

- Hackney Marshes
- Queen Elizabeth Olympic Park
- Millfields

8.9 A total of 27% of the borough is designated as either Metropolitan Open Land (MOL) or Green Belt (GB), concentrated mainly on the western aspect. These areas are recognised as playing a strategically important role in controlling urban growth and maintaining the structure of the built environment by providing gaps of open space between settlements. The benefits and opportunities of GB and MOL also include providing opportunities for access to open spaces for recreation, sport and nature conservation interest for the urban population.

Consultation findings

Responses from the **public survey** found that:

76% of respondents have a green space they can use within five minutes walking distance of their home.

74% of respondents indicated either tend to 'agree' or 'strongly agree' that Waltham Forest has a good amount of open space.

More respondents indicated 'strongly agree' for more green corridors and natural and semi-natural spaces being required when compared to other types of open space.

58% of respondents to the public survey either 'strongly agree' or tend to 'agree' that green spaces within Waltham Forest are clean and well maintained.

50% 'strongly agree' or tend to 'agree' that their nearest green space has all the facilities they need.

63% indicate that they feel safe visiting green spaces in the borough.

Various strands of the consultation highlighted some of the borough sports sites are heavily used by Waltham Forest residents such as Wanstead Flats and Hackney Marshes.

The **internal stakeholder workshop** highlighted several key themes that should be considered in planning for open space in the future, including:

- Promoting a sense of safety, security and natural surveillance within open spaces should be a priority where new development is being designed and built.
- Improving links and providing attractive green routes between sites in areas with limited access to larger open spaces.

Consultation with **neighbouring authorities** highlighted that residents use several open spaces in other boroughs:

- It was noted that cricket facilities in Redbridge are well used by Waltham Forest residents, as are grass pitches generally at sites such as Wanstead Flats.
- Hackney Marshes, Springfield Park and Queen Elizabeth Olympic Park are noted to be important sites.
- Areas of Epping Forest such as Leyton Flats, Hollow Ponds and Chingford Hub act as honey pot sites and are easily accessible for many residents on foot, by car and on public transport.

Natural England as a **statutory consultee** highlighted the importance of guidance that has been provided related to managing recreational pressure on Epping Forest SAC. As well as the importance of providing new public open space where possible and maintaining key sites such as Walthamstow Wetlands.

Considerations

8.10 The borough's network of open spaces provides a range of recreational opportunities and experiences including access to nature and formal parks and gardens.

8.11 Provision of open space across the borough varies between wards and the Neighbourhood Areas.

8.12 Areas with high levels of deprivation within various indices such as physical and mental health are associated with poor access to open space. These areas should be prioritised for investment where possible.

Quantity

8.13 The borough has set a public open space quantity standard of 1.6 hectares per 1,000 population. The quantity standard covers Parks and Gardens, Natural and Semi-Natural Urban Green Space and Amenity Green Space.

8.14 The Southern Neighbourhood Area has the lowest quantity of public open space in the borough when compared to the North and Central Neighbourhood Areas, and, overall, the area falls below the quantity standard. Large areas of open spaces in the west of the borough are made up of large bodies of water.

8.15 Provision for equipped play falls significantly below the $10m^2$ per child quantity standard. The standard also includes areas of informal play space which also needs to be considered in undertaking detailed assessments.

8.16 An increase in population up to 2035 will see a decrease in the quantity of open space per 1,000 people, which will have the most significant impact in the south.

Accessibility

8.17 Applying the borough accessibility standards shows that:

- All wards have some deficiencies in local access to open space (sites accessible within 400m from home), with the most significant gaps in local access within the Southern Neighbourhood Area. Access to formal parks and gardens is poor in many areas of the borough and these areas are most significant in the south east of the borough.
- The whole borough is considered to have good access to Metropolitan and Regional Natural and Semi-Natural Urban Green Space (sites that are 60 ha or more). However, this includes Epping Forest SAC and there is a need to mitigate against recreational pressure on this site.
- The following wards have areas that are deficient in access to formal equipped play provision for children and young people:

- Chingford Green
- Leyton
- Larkswood
- Hale End & Highams Park
- Forest
- Lea Bridge
- Higham Hill
- High Street

Quality and value

8.18 The Needs Assessment included undertaking a sample audit of 81 open spaces across the borough utilising the Green Flag award criteria[74]. This process resulted in each site being given a quality score and a value score.

8.19 A quality and value 'benchmark' standard has been developed for each type of open space. Each open space has subsequently been compared against the standards in order to understand their current performance and identify priorities for enhancement. **Table 8.3:** provides an overview of the number of audited sites achieving, exceeding or falling below the standards.

8.20 Figure 8.1 shows quality and value of open spaces across the borough, and areas with deficiencies in access to open space.

Table 8.3: Performance of open spaces against the quality and value standards

Assessment	Quality standard	Value standard
No. of sites meeting or exceeding the standard	42	69
No. of sites close to meeting the standard	13	4
No. of sites not meeting the standard	26	8
Total audited sites	**81**	**81**

Outdoor sports

8.21 The Needs Assessment did not assess outdoor sports provision in detail and did not assess accessibility of outdoor sports sites. However, the assessment identified 46 outdoor sports facilities and 3 disused outdoor sports facilities, covering 210.5ha. Outdoor sports facilities also occur as a 'secondary typology' within other types of open space (e.g. within parks and gardens.)

8.22 A detailed Playing Pitch Strategy (PPS) is being prepared which will guide decisions regarding future provision and management of sports pitches in the borough. Key issues identified within the draft PPS (2018) for each of the types of provision considered are outlined in **Table 8.4:** below.

Table 8.4: Key issues identified in draft 2018 PPS

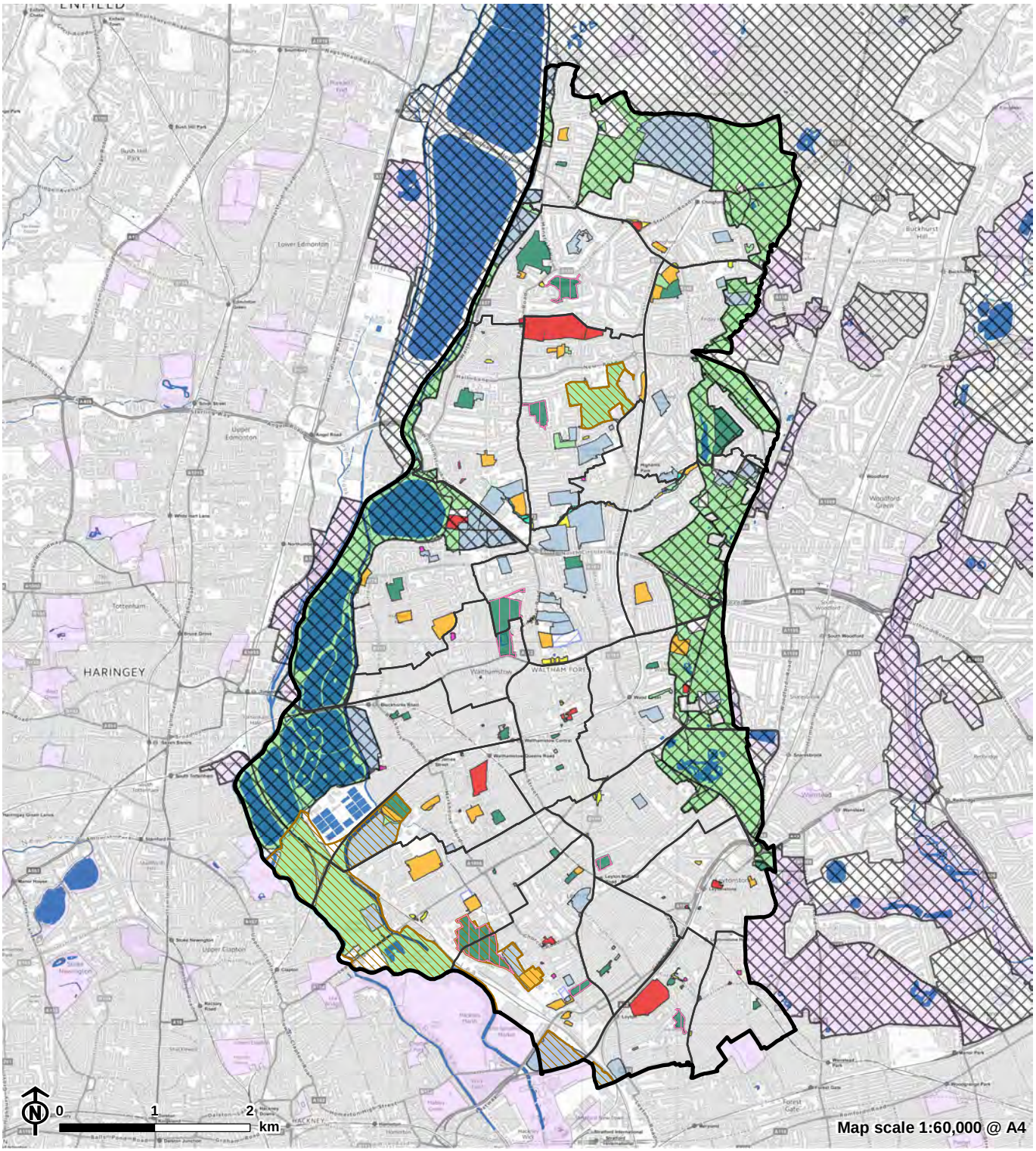
Sports provision	Summary of key issues identified in draft PPS
Rugby Union	There is an overall undersupply of rugby pitches in the borough. The quality of provision is generally poor which is attributed to poor drainage and maintenance. There is a deficit of provision which is expected to be made worse by increased demand up to 2031.
Hockey	The quality of hockey provision (Artificial Grass Pitches- AGP) is mixed, with two high quality pitches and one low quality pitch. The development of additional provision for hockey will be required to satisfy the demand that is expected as a result of population growth.
Football	Around 86% of pitches are considered to receive adequate maintenance. Only four pitches are currently rated as poor quality. Future deficits in provision are expected to be worst for youth 11v11 and Mini 5v5 pitches. There is an identified need for two full sized 3G AGPs by 2031.
Cricket	84% of cricket sites in the borough are currently considered to be 'standard' or 'good' condition and receiving adequate maintenance. Provision is considered adequate for the current demand. A significant increase in cricket demand is expected by 2031. The existing provision will need to be complemented with additional artificial wickets to avoid significant overplay on grass wickets.

Principles: Open space

- Deliver high quality, multifunctional and publicly accessible open space recognising its potential to improve the health and well-being of local communities through providing a range of opportunities for recreation, sport and play.
- New development will be required to consider the location and layout of open space, play space and areas for recreation early in the design process, and may be required to provide additional open space or contributions towards improvements to existing open space. Proposals which employ principles of 'good design' that ensure open spaces are welcoming and safe, with good natural surveillance will be supported.

[74] http://www.greenflagaward.org/media/1019/green-flag-award-guidelines.pdf

- Enhancement of the wider network will be promoted to mitigate against poor provision by; creating new open spaces; ensuring well designed, high quality public realm and civic spaces are incorporated; creating good links, accessible green corridors and routes between existing open spaces; addressing barriers to access; and ensuring other green and blue infrastructure features, such as flood storage and habitat areas are incorporated within open spaces to provide opportunities for informal recreation, sport and play.
- Ensure open spaces maximise health and well-being benefits, through providing inclusive, playable spaces for all; including areas for natural play, informal play, as well as equipped play spaces within open space.
- On-going management will ensure that strategically important open spaces such as the borough's Premier Parks, Walthamstow Wetlands, and sites in areas with open space deficiencies are resilient to any potential increased visitor or population pressure. This includes the provision of appropriate levels of facilities, sports pitches, infrastructure and resilient planting.
- Improvements to existing open spaces within the vicinity of Epping Forest SAC and Lee Valley SPA, as well as the inclusion of additional open space within new developments, will be recognised as a key aspect of reducing recreational pressure through the undertaking of a borough-wide SANGs review.



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Source: LUC, OS

Figure 8.1: Open Space

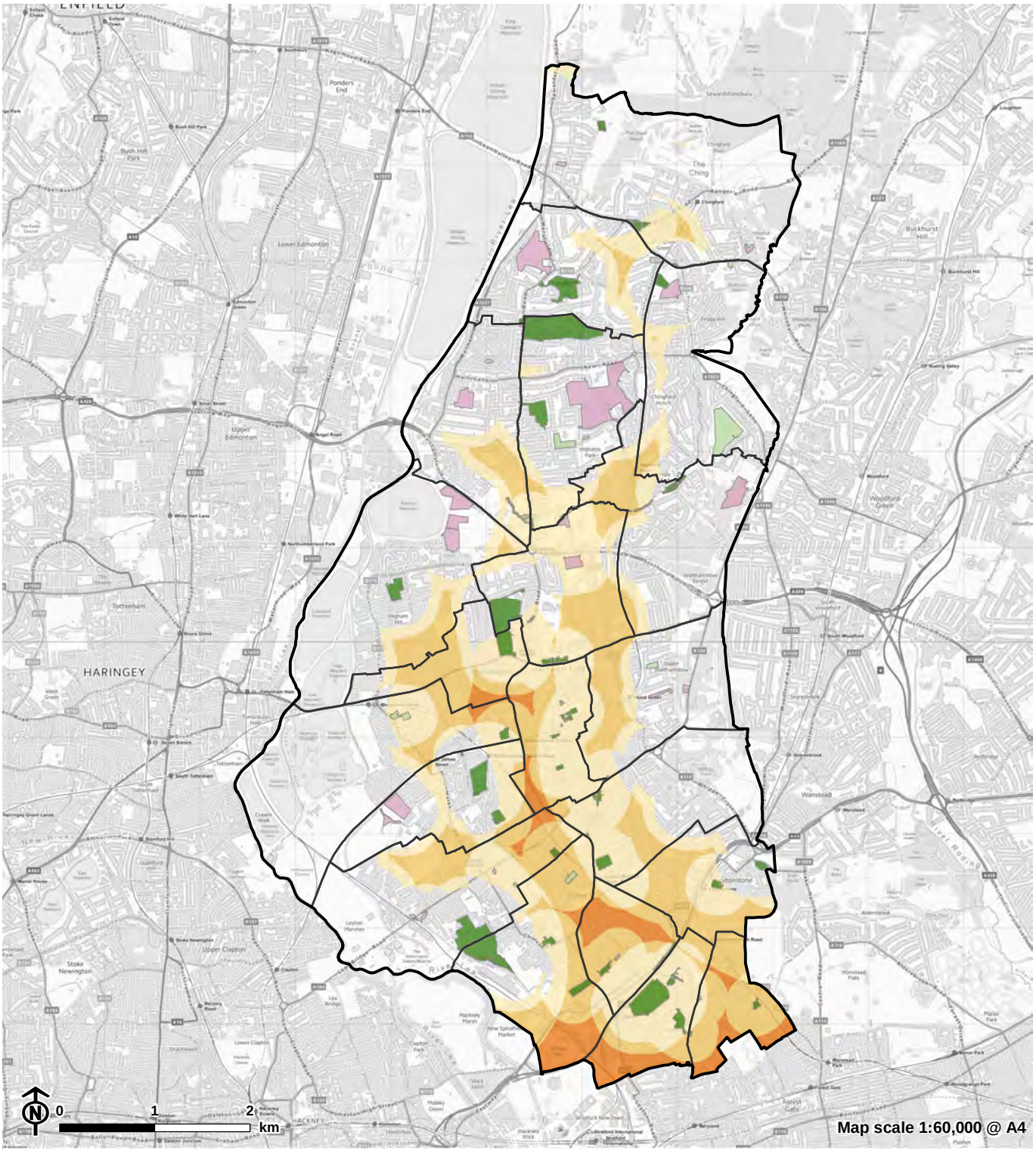
- Waltham Forest boundary
- Ward boundary
- Open spaces in surrounding authorities*
- Premier park
- Green Belt
- Metropolitan Open Land

Typology

- Parks & gardens
- Natural & semi-natural urban green space
- Green corridors
- Amenity green space
- Civic spaces
- Allotments, community gardens & city farms
- Cemeteries and churchyards
- Provision for children and teenagers
- Outdoor sports facilities
- Green gym/MUGA/other play
- Disused outdoor sports facilities
- Large waterbodies

*May not be comprehensive

Waltham Forest



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CB:MB EB:Beetham_m LUC FIG8_2_10678_r0_Quality_and_Accessibility_A4P 04/12/2019
Source: OS, London Borough of Waltham Forest

Figure 8.2: Quality and Accessibility

Waltham Forest boundary

Ward boundary

Quality assessment

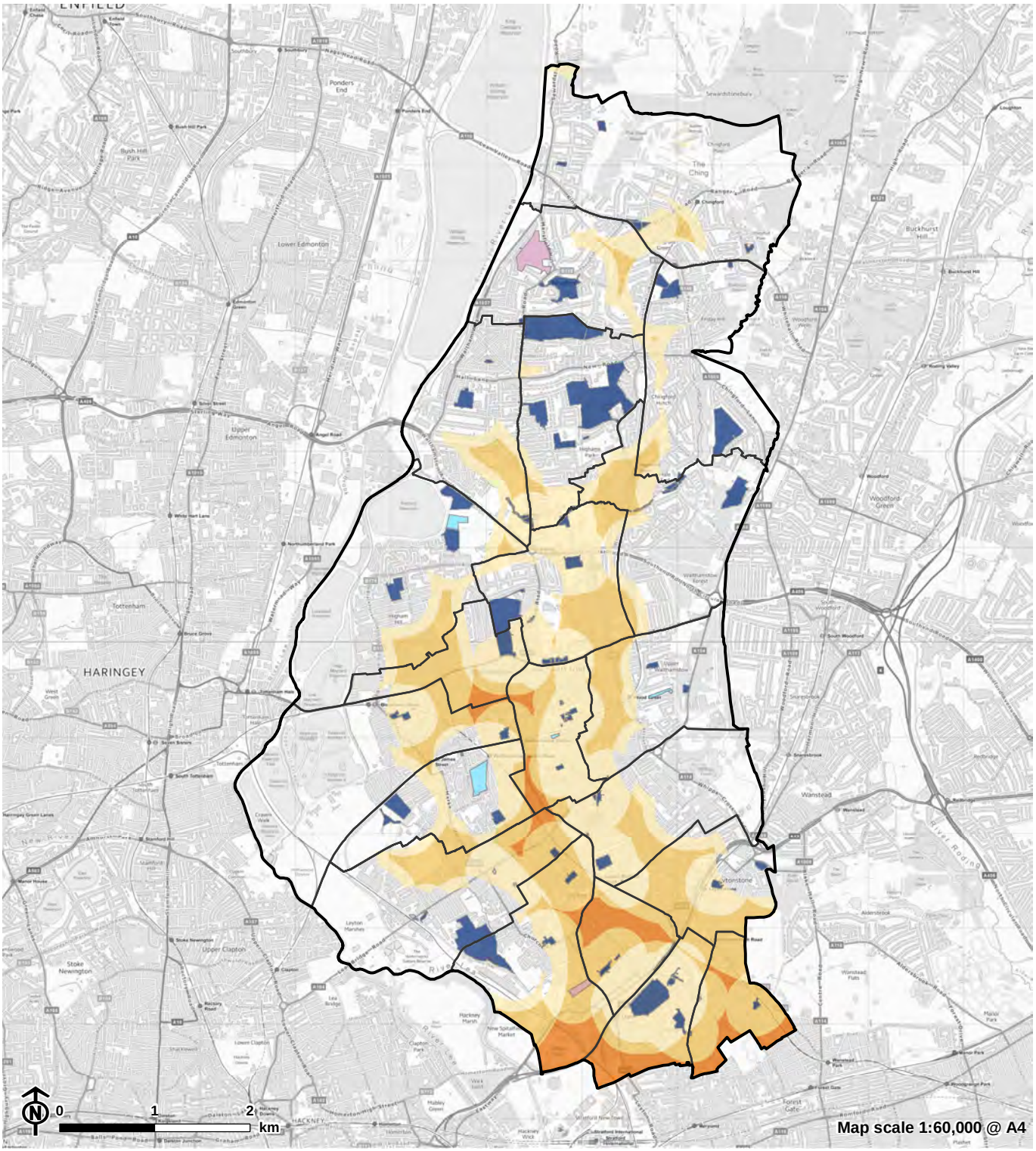
- Meets or exceeds standard
- Close to meeting standard
- Doesn't meet standard
- Currently closed

Deficient in access to:

- One level of the hierarchy
- Two levels of the hierarchy
- Three levels of the hierarchy

Type/hierarchy	Quality standard
Parks and gardens	
Local	44
Small local	37
Natural and semi-natural urban green space	
District	31
Local	26
Small local	24
Green corridors	
Green corridors	17
Amenity greenspace	
Amenity greenspace	22
Cemeteries and churchyards	
Cemeteries and churchyards	27

Waltham Forest



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Source: OS, London Borough of Waltham Forest

Figure 8.3: Value and Accessibility

Waltham Forest boundary

Ward boundary

Value assessment

- Meets or exceeds standard
- Close to meeting standard
- Doesn't meet standard
- Currently closed

Deficient in access to:

- One level of the hierarchy
- Two levels of the hierarchy
- Three levels of the hierarchy

Type/hierarchy	Value standard
Parks and gardens	
Local	44
Small local	34
Natural and semi-natural urban green space	
District	21
Local	16
Small local	14
Green corridors	
Green corridors	11
Amenity greenspace	
Amenity greenspace	9
Cemeteries and churchyards	
Cemeteries and churchyards	17

Waltham Forest

Chapter 9

Urban Greening

Chapter 9
Urban Greening

9.1 The greening of Waltham Forest's 'grey' infrastructure, including roads and buildings, has the capacity to transform the look and feel of the borough, as well as helping to improve air quality, increase biodiversity, reduce flood risk and provide urban cooling. Green walls and roofs, pocket parks and rain gardens, and tree lined streets form a key part of the borough's green infrastructure network, helping to provide ecological, social and flood management benefits.

Key assets

Trees

9.2 Between 2012 and 2017, the London Borough of Waltham Forest planted an additional 5,000 trees, increasing the total number in the borough by 12%. Furthermore, the following year saw 1,600 new trees being planted [75].

9.3 As of April 2017, there were 48,800 trees within Waltham Forest which fall under the responsibility of the Council[76], with the majority of these being street trees.

9.4 Tree stock predominantly contains native species, which potentially puts them at risk to a warming climate. The top ten species of tree (and no. of trees) owned and managed by the Council are as follows:

- Common Ash (2,187)
- Common Lime (1,851)
- Wild Cherry (1,724)
- Silver Birch (1,673)
- Hawthorn (1,465)
- London Plane (2,172)
- English Oak (1,799)
- Sycamore (1,679)
- Field Maple (1,548)
- Blackthorn (1,369)

9.5 Approximately 1,863 individual trees, tree groups and trees in woodland are protected by Tree Preservation Orders within the borough, the majority of which are within residential gardens.

9.6 Figure 9.1 shows the density of tree planting in the borough.

Pocket Parks

9.7 Around 15 'pocket parks' have been created as part of 'Enjoy Waltham Forest', many of which provide space for vegetation and recreation nearby homes or places of work.

[75] Waltham Forest Council (2018) https://walthamforest.gov.uk/content/growing-pride-waltham-forest-beats-ambitious-tree-planting-target

[76] Waltham Forest Council (2017) Waltham Forest Tree Strategy 2017-2022

The borough currently has two pocket parks on the London Pocket Parks map. This includes the Callonfield War Memorial Project and the Ive Farm Close Park, which provides space for food growing opportunities within the community.

9.8 40 'Modal filters' have been installed as part of the 'Enjoy Waltham Forest' scheme to restrict traffic on minor roads, and often include space for trees and ornamental planting.

Green roofs and walls

9.9 As of 2017 Waltham Forest had a total green roof area of 18,457m^2, equating to 0.06m^2 of green roof per person. 22% of this total area are intensive green roofs, 78% extensive and 6% biosolar. This equates to a 135% increase between 2016 and 2017[77].

9.10 There have been several schemes in the borough installing green walls, including at the Mall, Walthamstow, and at Woodside Primary Academy.

Private Gardens

9.11 Private gardens form an essential component of a resilient urban environment. Gardens can help to mitigate the severity of impacts on deficiencies in public open spaces, can positively contribute to biodiversity and help communities to respond to a changing climate. Consideration should be given to the impact of 'paving Waover' of front gardens, the impact this can have on a community's health and well-being, erosion of character and community cohesion.

9.12 Figure 9.2 shows the spread of private gardens in the borough.

Consultation findings

Consultation with **external stakeholders** highlighted the importance of urban greening for habitat connectivity. Natural England reported how elements of urban greening, such as wild green space, green walls and green roofs, could connect habitats and therefore enhance species adaptation to climate change.

The **Friends Groups** within Waltham Forest are particularly concerned with increasing green space, tree canopy and biodiversity. They suggest that there could be more 'infill' spaces, such as green walls, as well as 'creative smaller spaces and town centre greening'.

Friends Groups also identified a need for more street trees and spaces for planting with a wider diversity in species choice. Furthermore, the groups expressed a desire for green design to be incorporated into the architecture of the buildings, alongside the spatial planning of streets and public realm.

Considerations

9.13 Trends in urban planning over the years can have an influence on the options available for good street tree planting. Areas to the south and directly north of the North Circular Road (A406) are predominantly Victorian and Edwardian, and opportunities for planting along existing residential streets can be limited due to the small street widths. In contrast, housing from the inter-war and post-World War II periods, which dominates the north of the borough, includes wider roads and verges and therefore more scope for planting a wider range of species; most importantly larger scale tree species.

9.14 There is a lower tree canopy cover in areas of deprivation and poor health, particularly in the south of the borough.

9.15 Both pests and diseases and a changing climate pose a significant threat to the Council's tree stock. Common Ash is the most abundant species when considering the council owned tree stock[78] and the ongoing threat of Ash Dieback could present a need for large-scale replacement planting in the future. The borough has produced a tree strategy which may be used to guide planting choices.

9.16 The North Circular Road (A406) and A12 are a particular concern in the borough for air quality and a degree of mitigation could be achieved through additional urban greening, such as tree planting.

9.17 The borough has produced the Waltham Forest 'Mini-Holland Design Guide'. This document sets out the importance of installing trees and other vegetation alongside sustainable transport routes to improve the environment and encourage walking and cycling.

First Avenue Pocket Park, Walthamstow

The First Avenue Pocket Park will sit on a busy junction of Walthamstow's town centre, providing a space for public amenity and greenery. The scheme is an example of how a pocket park will be delivered alongside a new residential development, providing benefits not just for residents but the surrounding community which the development will affect.

The borough has recently received funding for four additional pocket parks via the Pocket Parks Plus scheme, totalling £70,500 [79]. The grant from the Ministry for Housing, Communities and Local Government will be used for projects drawn up by OrganicLea Community

[77] Living Roofs (2017) https://livingroofs.org/london-map-green-roof-boroughs/london-borough-waltham-forest/
[78] Waltham Forest Tree Strategy 2017-2022 V1, (2017), pg. 32
[79] Ministry of Housing, Communities & Local Government (2019) https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/788806/Pocket_Parks_Plus_successful_organisations.pdf

Growers, Love North Chingford Community Interest Company and Wood Street Community Interest Company.

9.18 Critical Drainage Areas which have been identified in the borough provide a focus for seeking for additional urban greening measures. Interventions in these areas will provide that biggest gains and benefits related to reducing surface water runoff.

9.19 Surface water run-off has been shown to negatively impact on the water quality of the borough's river network. Trapping pollutants at source, through measures to intercept surface water run-off from roads and other impermeable surfaces provides the opportunity to improve the ecological status of several water courses that run through the borough.

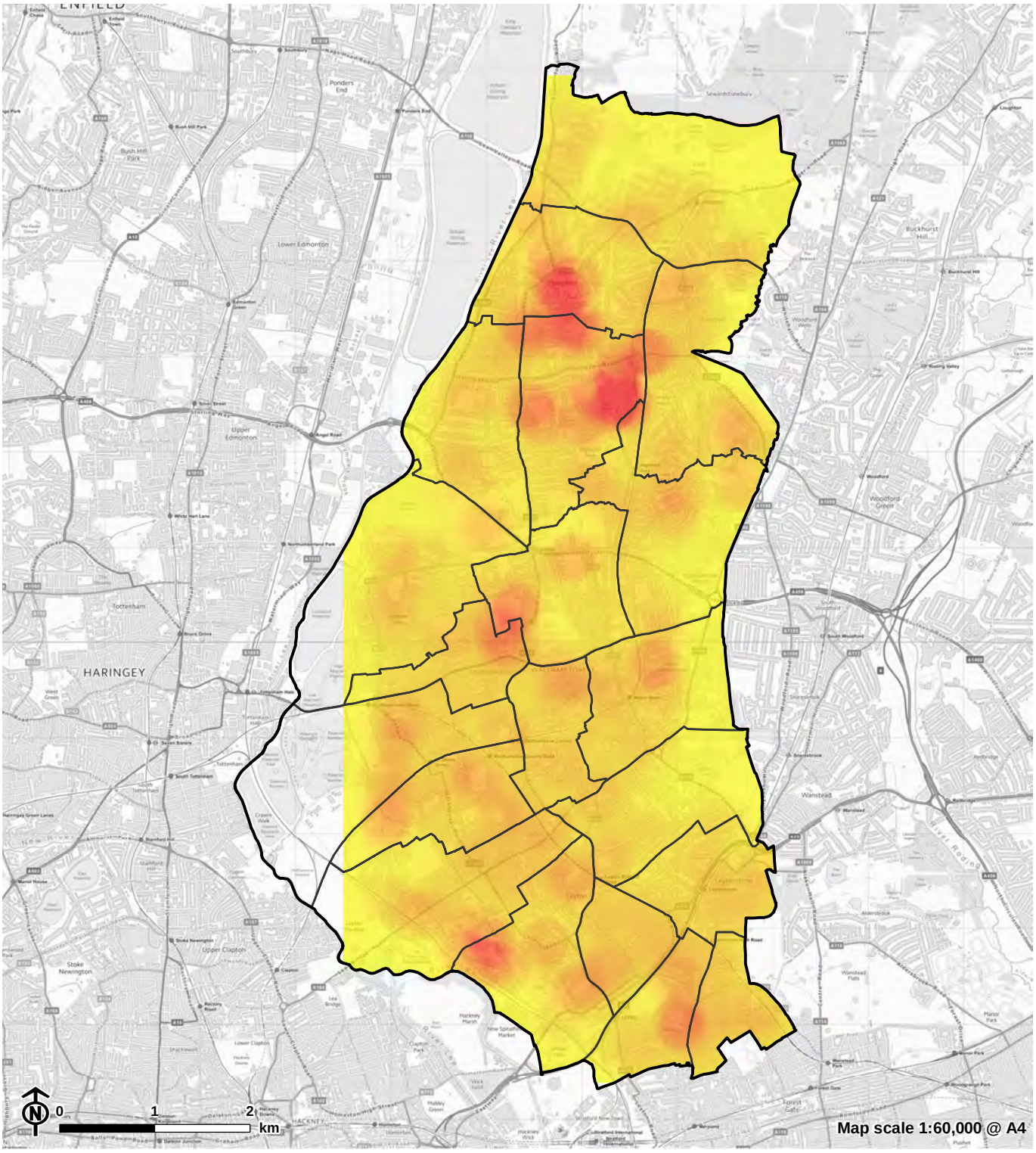
9.20 Figure 9.3 shows the presence of surface water in relation to the strategic development sites.

Principles: Urban greening

Urban Greening and Public Realm Principles

- Promote the 'greening' of Waltham Forest. The emphasis of 'greening' shall be on ground level features (such as street trees, pocket parks, multifunctional SUDs). Green/brown roofs, green walls and podium level greening shall be used as a supplementary measure rather than in place of ground level GI.
- Particular emphasis will be placed on improving air quality through urban greening along polluted corridors such as the A12 and the A406, as well as congested town centres including Walthamstow and Leyton.
- Deliver a high quality public realm which encourages social interaction, improves health and well-being, and sustainable travel choices.
- The layout of new development, massing and the configuration of roads and hard landscaping must aim to maximise opportunities for the incorporation of vegetation, and the healthy growth of trees.
- Seek opportunities for implementing urban greening measures in Critical Drainage Areas. The drainage hierarchy, where run-off is primarily controlled at the source, should be implemented within development proposals. The use of SuDS will be promoted to ensure that the borough is able to deal with the effects of climate change, including an increase in the magnitude and frequency of extreme weather events.
- Opportunities will be sought to facilitate community based urban greening projects and promote good management of private gardens. Existing guidance will be promoted such as the Mayor of London's Grey to Green Guide[80], which provides a guide to managing community 'de-paving' schemes.
- Waltham Forest will work with partners and public bodies to ensure appropriate measures are taken to ensure high levels of urban greening and flood mitigation measures are included within developments including strategic developments, such as Waltham Forest Town Hall and Whipps Cross Hospital.

[80] Mayor of London (2019) Grey to Green Guide



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CB:MB EB:Beetham_m LUC FIG9_1_10678_r0_StreetTreeDensity_A4P 04/12/2019
Source: OS, London Borough of Waltham Forest

Figure 9.1: Street Tree Density

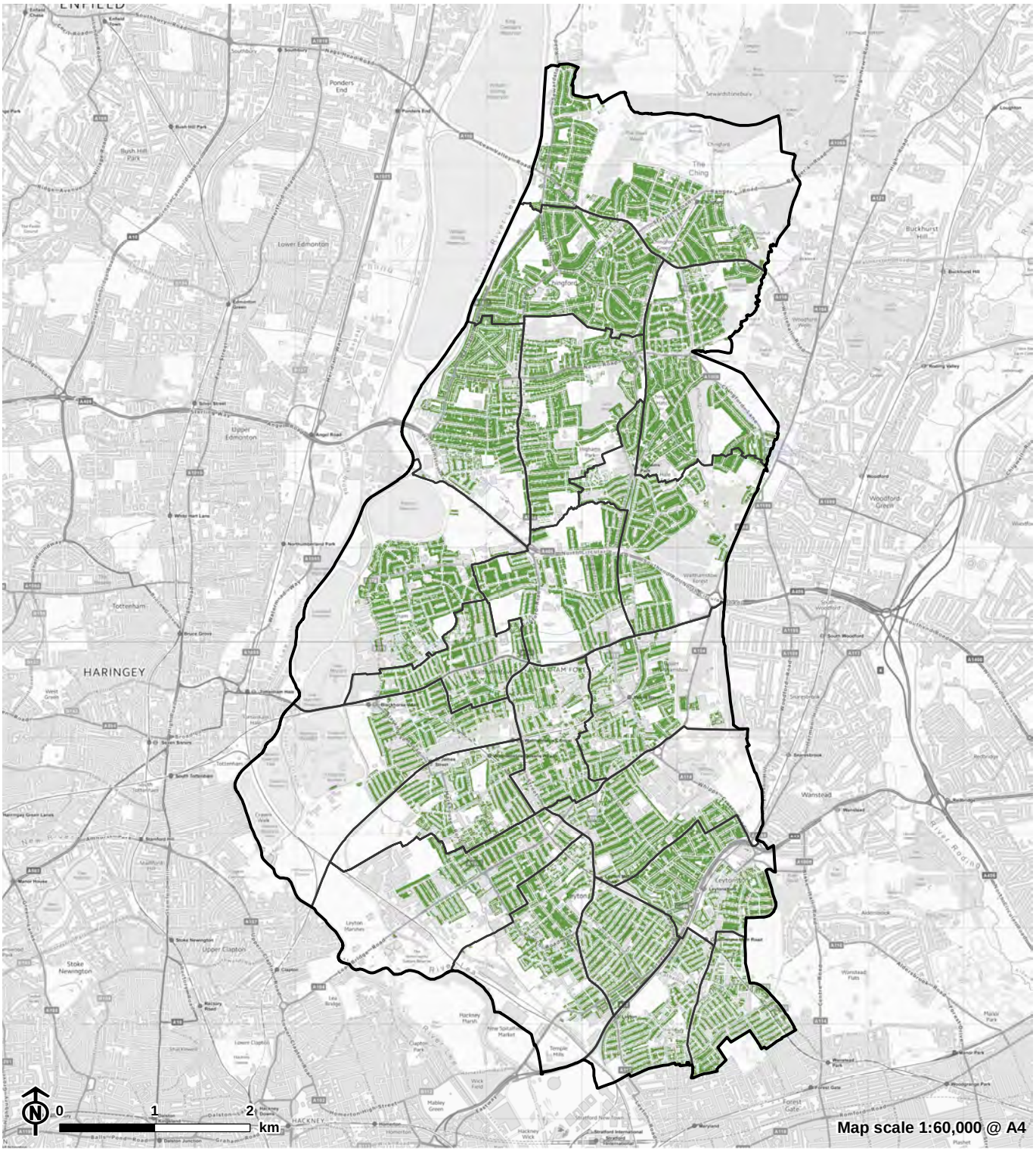
Waltham Forest boundary

Ward boundary

Tree density

High

Low



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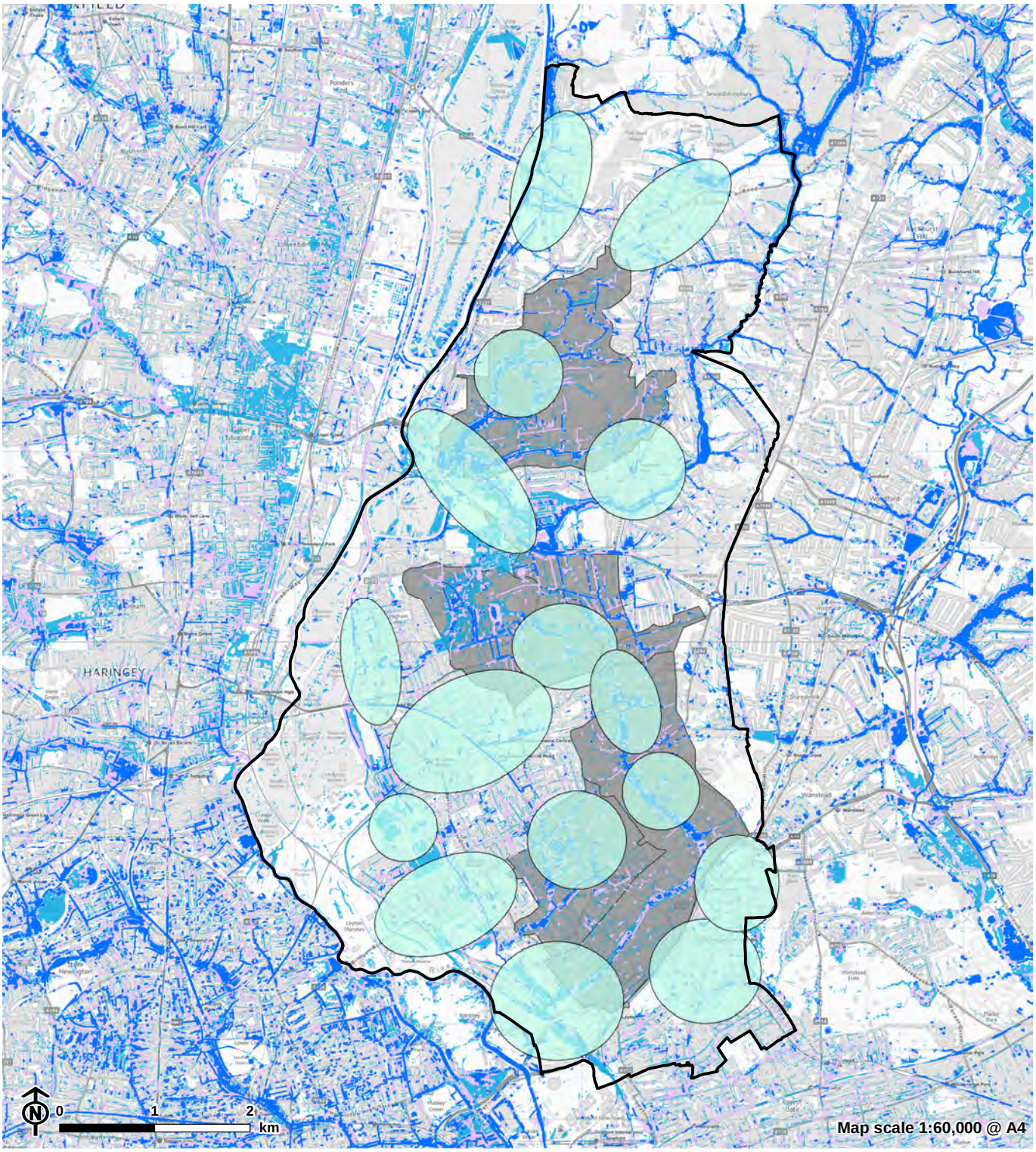
CB:MB EB:Beetham_m LUC FIG9_2_10678_r0_PrivateGardens_A4P 04/12/2019
Source: OS, London Borough of Waltham Forest

Figure 9.2: Private Gardens

- Waltham Forest boundary
- Ward boundary
- Private garden



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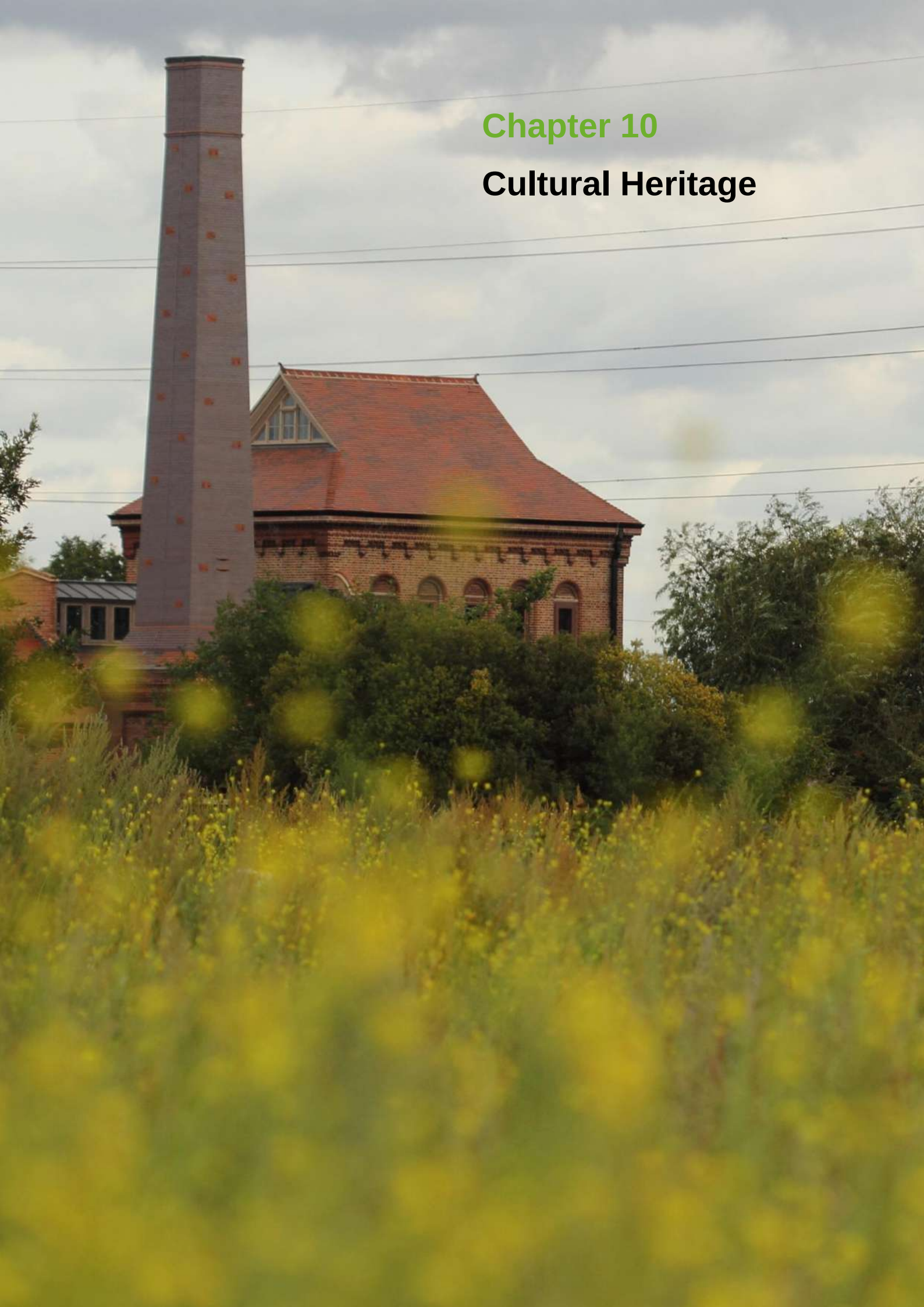
CB:MB EB:Beetham_m LUC FIG9_2_10678_r0_Surface_water_developments_A4P 04/12/2019
Source: OS, EA, London Borough of Waltham Forest

Figure 9.3: Surface Water and Developments

Waltham Forest boundary
Strategic location
Critical drainage area

Risk of flooding from surface water

Flood extent risk for a 1 in 30 year event
Flood extent risk for a 1 in 100 year event
Flood extent risk for a 1 in 1000 year event



Chapter 10

Cultural Heritage

Chapter 10
Cultural Heritage

10.1 Elements of the green and blue infrastructure network in the borough comprise important heritage features and several open spaces are recognised as being of historic and cultural significance. The network often contributes to the wider setting of built heritage assets and built heritage features in turn may provide important hubs or areas of interest in the borough which need consideration when planning for green and blue infrastructure. **Figure 10.1** shows the assets designated for their cultural heritage importance.

Waltham Forest was named the first London Borough of Culture in 2019, which recognises the strong, culture-led diverse and creative communities in the borough and provides the opportunity to promote and showcase its culture and character. Several events and activities organised as part of the scheme were centred around the borough's open spaces and their cultural importance, such as Epping Forest.

The borough is preparing a Culture Legacy Strategy that which will set out the approach for maximising benefits from the scheme in the coming years.

Key assets

Historic landscapes

10.2 Several parks and open spaces within Waltham Forest act as important heritage and cultural assets in themselves and play an important role in interpreting the history of the borough and London as a whole.

Key historic landscapes within and directly adjacent to Waltham Forest:

- Lloyd Park, including the William Morris Gallery
- Epping Forest
- The historic landscape at the Highams Park (designed by Humphrey Repton)
- Springfield Park (Grade II Registered Park and Garden within the London Borough of Hackney)
- Wanstead Park (Grade II* Registered Park and Garden largely falling within the London Borough of Redbridge)

Built heritage assets

10.3 This Strategy does not consider the protection and management of built heritage assets in any detail. However, this aspect is still of relevance as many green and blue infrastructure assets provide an important setting or be an important aspect of the character of the area surrounding built assets.

10.4 The borough contains numerous listed buildings. These are generally concentrated around the town and district centres. Several listed buildings are also located within open spaces including Walthamstow House and the Water House at Lloyd Park, and Queen Elizabeth's Hunting Lodge at Chingford Plain, which are Grade II* listed.

10.5 The borough also maintains a list of locally significant buildings.

Conservation Areas & Areas of Special Character

10.6 There are 14 Conservation Areas designated in order to recognise and protect special architectural and historic interest in the borough. While the purpose is largely to inform development control and set out requirements relating to external changes to properties; the public realm, open space, trees and other vegetation is recognised within many of the Management Plans for Conservation Areas in the borough as being integral to the character of the areas and contributing to the setting of built heritage features.

10.7 The borough has one designated Area of Special Character, *'Highams Area of Special Character'*, which has implications with regard to planning control and development management.

10.8 Large areas of the west of the borough are Archaeological Priority Areas, which are generally focused around Lee Valley Regional Park.

Consultation findings

Results from the **public consultation** highlighted that several open spaces in the borough with notable heritage or historic interest are some of the most visited sites by residents.

Internal stakeholder consultation highlighted management issues relating to pressure from high visitor numbers and high profile events at several heritage landscapes within the borough, such as Lloyd Park.

The consultation exercise indicates that several F**riends Groups** and community groups are actively engaged in a number of open spaces of heritage importance.

Anti-social behaviour, break-ins and vandalism may be a threat to several heritage assets, which could be addressed through better security and community engagement.

Community groups have expressed a desire to see more old buildings within parks restored for community use.

Considerations

10.9 The borough's parks and open spaces provide important venues for cultural programmes and activities.

10.10 Pressure on historic landscapes and heritage features will likely increase with projected growth. These assets will therefore need careful monitoring and management.

10.11 The borough has benefitted from Heritage Lottery funding for important heritage projects resulting in improvements in access to open space, public realm and community engagement. Recent and current projects include:

- Lloyd Park, Walthamstow
- St James Street, Townscape Heritage Regeneration Scheme, Walthamstow
- Leyton cricket pavilion and sports ground
- Walthamstow Wetlands

10.12 The Green and Blue Infrastructure Strategy should align with the emerging Culture Legacy strategy and should aim to promote consideration of green and blue infrastructure in its delivery.

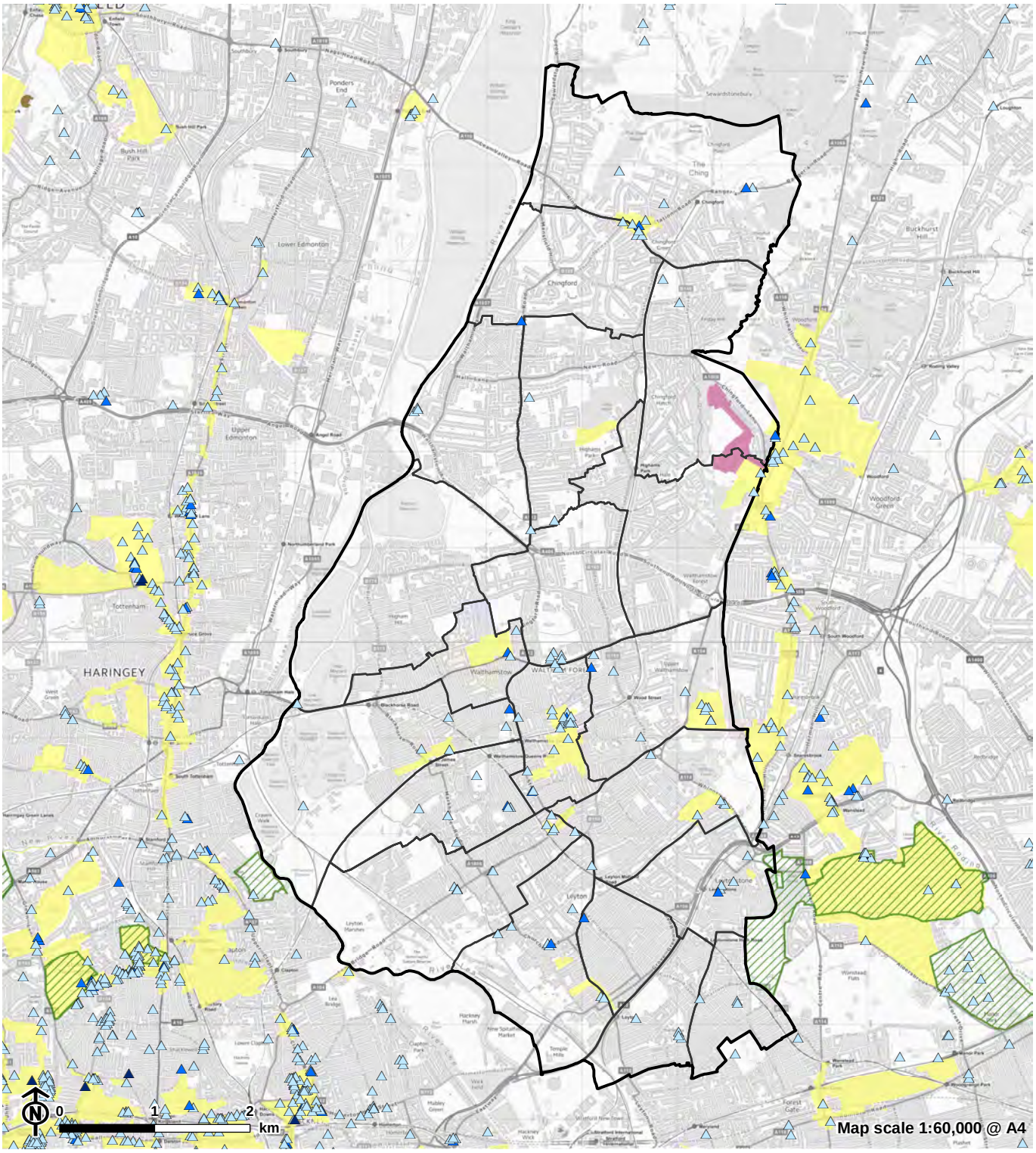
10.13 If not managed and considered appropriately, development pressure may threaten to impact the setting of heritage assets through loss of open space (including incidental open space).

10.14 Several open spaces of heritage significance are under joint ownership and management, which requires on-going partnership working. This includes The Highams Park and Walthamstow Wetlands.

Principles: Cultural heritage

- Policies will recognise the contribution green and blue infrastructure makes to the cultural heritage of the borough and ensure that feature are managed holistically.
- Open spaces which are recognised as being of historic and cultural significance, such as Lloyd Park and Highams Park, should be recognised as key elements of the wider green and blue infrastructure network, requiring good connectivity and access.
- The 'greening' of 'grey' infrastructure will have regard for the existing character of the borough and aim to improve the setting of any features of heritage significance. Proposals shall be developed in line with relevant Conservation Area Management Plans.

- Seek opportunities to maximise the potential benefits of partnership working and management of heritage landscapes in the borough, including securing funding and pooling resources.



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CB:MB EB:Beetham_m LUC FIG10_1_10678_r0_Historic_Designations_A4P 04/12/2019
Source: OS, HE, GLA

Figure 10.1: Cultural Heritage Designations

- Waltham Forest boundary
- Ward boundary
- Conservation area*
- Registered park and garden
- Scheduled monument
- Area of special character

Listed Building

- Grade I
- Grade II*
- Grade II

*Data taken from the Waltham Forest Open Space Strategy. It may therefore need updating.

Chapter 11

Green and Blue Infrastructure Actions and Projects

Chapter 11
Green and Blue Infrastructure Actions and Projects

11.1 Table 11.1 details borough-wide actions and policies which seek to promote a cohesive and multifunctional green and blue infrastructure network within Waltham Forest. Predicted timescales, potential partnerships and relation to the Parks and Open Space Strategy are also indicated.

11.2 Table 11.2 provides an overview of twelve strategic priority projects (A-L), including summary, key drivers, potential delivery partners and outline costs. These projects are envisaged to give an example of a diversity of interventions, both spatially and in terms of project type, which could be delivered within the borough. Whilst many of the projects include the provision of new GBI, the continued stewardship of existing assets remains a priority for the Council.

11.3 Projects have been identified to be multifunctional in nature and to demonstrate a range of benefits investment in green and blue infrastructure can have on residents and visitors alike. There are significant on-costs in many of the projects and the potential for rolling investment needs is a component in the indicative costings.

Table 11.1: Waltham Forest Green and Blue Infrastructure borough-wide actions

Ref.	Action	Key internal/external partners
1	Update policies within the emerging Local Plan and supporting documents to reflect green and blue infrastructure principles set out within this Strategy. Include Strategic Priority Project details within the Local Plan where appropriate.	■ Statutory consultees ■ Planning Policy/ Development Management
2	Incorporate proposed Strategic Priority Projects within the borough Infrastructure Delivery Plan (IDP), where appropriate.	■ IDP Lead
3	Incorporate updated open space, play and sports provision standards and policies within the Local Plan, as set out in the updated 2019 Open Space Needs Assessment and the borough Playing Pitch Strategy.	■ Planning Policy/ Development Management ■ Parks team
4	Commission Green Infrastructure Audits across identified 'prioritisation areas for urban greening' (as shown in Figure 4.2) to implement urban greening measures. Measures should aim to increase tree canopy cover, attenuate water, increase ecological connectivity and improve the streetscape. Prioritisation areas should include areas already identified for potential flood mitigation projects (e.g. Brook Rd E17, Bateman Rd E4, Coppermill Area Highways, Forest Rd E17, South Chingford housing estates SuDS retrofit, SuDS installation in the Fillebrook Catchment).	■ Internal officers – as required
5	Commission a study to establish an approach to mitigations of recreation impacts on Epping Forest SAC and Lee Valley SPA. Study should consider options for the provision of SANGS within the borough, ensuring compliance with the Conservation of Habitats and Species Regulations 2017. The study should be undertaken in consultation with surrounding authorities, the City of London Corporation & Lee Valley Regional Park Authority.	■ Planning Policy/ Development Management ■ Surrounding local authorities ■ City of London Corporation ■ Lee Valley Regional Park Authority ■ Natural England
6	Continue to work with City of London and Lee Valley Regional Park Authority to reduce and mitigate against recreational pressure within the SAC and SPA including on the delivery of the Interim Mitigation Strategy for Epping Forest. And other ecological mitigation strategies for identified 'hotspots' at the Forest (High Beech, Chingford Hub, Leyton Flats), Whole Forest Access Strategy, Forest Transport Strategy and Epping Forest Management Plan. *Links to Action 30 of the Parks and Open Spaces Strategy*	■ Planning Policy ■ Parks team ■ City of London Corporation ■ Lee Valley Regional Park Authority
7	Incorporate the recommendations set out within the Pollinator Action Plan (PAP) and updated Biodiversity Action Plan (BAP) within this strategy once adopted. The updated borough BAP will be appended to the GBI Strategy, with the PAP forming part of the BAP as a key policy document. Actions within the BAP and PAP shall largely be implemented by the Parks Team with advisory input from the Design Team and Nature Conservation Officer.	■ Planning ■ Nature Conservation Officer ■ Parks team

Ref.	Action	Key internal/external partners
8	Update the Green and Blue Infrastructure Strategy to align with findings/actions arising from Waltham Forest's Climate Emergency Commission and emerging updated Climate Change Strategy.	■ Planning ■ Climate Emergency Commission
9	Update the Green and Blue Infrastructure Strategy to align with findings/actions arising from Waltham Forest's emerging Culture Legacy Strategy.	■ Head of Culture
10	Update Strategic Priority Project details, GI Strategy and Action Plan to align with findings/actions arising from Waltham Forest's emerging Community Food Growing Strategy.	■ Environmental Initiatives Manager
11	Revise Borough Tree Strategy 2017-2021 to ensure GI Principles set out in the GI Strategy are recognised and considered. Provide a platform to review suitable locations within parks, open spaces and streets to be included within the annual tree planting programme. *Links to Action 4 of the Parks and Open Spaces Strategy*	■ Environmental Initiatives Manager
12	Ensure new tree and flowerbed planting, whether in open spaces or public realm, are included within the Council's 'adopt a tree' or 'adopt a flowerbed' watering and maintenance scheme to accommodate additional greening. *Links to Action 5 of the Parks and Open Spaces Strategy*	■ Parks team ■ TCV ■ Friends Groups
13	Revise Local Flood Risk Management Strategy (2015).	■ Lead Flood Engineer ■ EA
14	Explore the feasibility of pooling internal funding streams to commission borough wide catchment-based flood modelling (considering quantum of proposed development) to inform development management decisions and future flood management planning. (Estimated cost: £80,000-100,000)	■ Lead Flood Engineer ■ Planning ■ Highways ■ Thames Regional Flood and Coastal Committee ■ EA
15	Update Green and Blue Infrastructure strategy based on updated Strategic Flood Risk Assessments (SFRA) (level 1 & 2) for the borough if required.	■ Lead Flood Engineer ■ EA
16	Engage with Thames 21 and the GLA on the emerging updated London wide road runoff study[81] to identify locations for wetland creation to address issues of water quality.	■ Lead Flood Engineer ■ Planning ■ Highways

[81] The emerging study will build on the 2019 Road Runoff Water Quality Study commissioned by the GLA: https://www.london.gov.uk/sites/default/files/road_runoff_water_quality_study_exec_summary_dec_19_0.pdf

Ref.	Action	Key internal/external partners
17	Work with partners to develop and deliver schemes for flood risk management within the borough's parks and open spaces and deal with site specific drainage issues through multifunctional SuDS design. *Links to Action 3 of the Parks and Open Spaces Strategy*	■ Lead Flood Engineer ■ EA ■ Environment Agency ■ Thames Regional Flood and Coastal Committee
18	Continue to identify suitable sites within housing estates to deliver SuDS retrofit schemes and build capacity amongst community groups for delivery and ongoing maintenance. Identify applicable schemes for the '80 for 80' Thames Water programme.	■ Thames Water ■ Housing associations ■ Community groups ■ Lead Flood Engineer
19	Continue to seek opportunities for inclusion of SuDS schemes where highways works are taking place.	■ Lead Flood Engineer ■ Highways
20	Develop guidance / technical note and signpost to good practice for SuDS maintenance and design to ensure ongoing functionality of highways SuDS. To include guidance relating to maintenance of gullies/drains, soil / plant replacement and appropriate species choice. To be accessible to wide audience including community groups and highways teams.	■ Lead Flood Engineer ■ Highways ■ Design Team (advisory role) ■ Nature Conservation Officer (advisory role)
21	Identify, support and deliver river corridor improvement projects, particularly where these pass through borough open spaces. *Links to Action 28 of the Parks and Open Spaces Strategy (two new projects by 2025 & four new projects by 2030)*	■ Parks team ■ Thames21 ■ Thames Regional Flood and Coastal Committee ■ TCV ■ EA
22	Identify sites where there is most need for new or replacement cycle parking, taking into consideration enhance cycling and sustainable transport links. *Links to Action 8 of the Parks and Open Spaces Strategy*	■ Enjoy Waltham Forest ■ Parks team
23	Secure sufficient support for co-ordination of volunteers within Borough parks. *Links to Action 12 of the Parks and Open Spaces Strategy*	■ Parks team ■ TCV ■ Friends Groups

Ref.	Action	Key internal/external partners
24	Increase promotion and uptake of Social prescribing. Seek to develop better communication between Public health, GPs and all parties delivering public engagement in parks. *Links to Action 19 of the Parks and Open Spaces Strategy*	■ Parks team ■ NHS ■ TCV
25	Undertake wildflower seeding at three new sites per year, focussing on low quality open spaces with low footfall (also reflected within the BAP and PAP). *Links to Action 27 of the Parks and Open Spaces Strategy*	■ Parks team ■ TCV ■ Friends Groups ■ Nature Conservation Officer (advisory role)
26	Produce a public leaflet to be distributed amongst residents and made available in public buildings to focus on biodiversity, key species and habitats in the borough. This should cover implications of the Climate Emergency, opportunities for volunteering and suggested individual action to conserve biodiversity. *Links to Action 29 of the Parks and Open Spaces Strategy (Delivered by 2022)*	■ Parks team ■ Nature Conservation Officer ■ TCV ■ Friends Groups
27	Develop and implement woodland management plans for sites containing woodland. Review any existing plans where needed. *Links to Action 31 of the Parks and Open Spaces Strategy (3 new/ reviewed plans by 2025 & 6 new/ reviewed plans by 2030)*	■ Parks team ■ External consultants ■ Friends groups ■ Nature Conservation Officer (advisory role)
28	Evaluate impact of large events on the fabric of open spaces and ensure sufficient financial contributions are made from events to re-instate damage and wear and tear. *Links to Action 38 of the Parks and Open Spaces Strategy*	■ Parks team ■ External consultants
29	Develop additional volunteering opportunities to help deliver actions related to wildflower seeding and woodland management. *Links to Action 43 of the Parks and Open Spaces Strategy (20 additional volunteer work days per year by 2030)*	■ Parks team ■ TCV
30	Ensure community engagement activities in parks and open spaces are provided with a good geographical spread across the borough and in areas of most need. *Links to Action 44 of the Parks and Open Spaces Strategy (Strategic review of engagement activities produced by 2024)*	■ Parks team ■ TCV
31	Ensure all new development within the borough employs resilient design as standard. Designs should include SuDS, to reduce the risk of surface water flooding, and urban greening, green walls, roofs and street trees, to enhance urban cooling and remove air pollutants. (Emphasis shall be on ground level features, with roof and podium level features supplementary.)	■ Lead Flood Engineer ■ Planning/ Development Management

Ref.	Action	Key internal/external partners
32	Identify opportunities for making improvements to cycle and pedestrian links through industrial areas within the borough, particularly within strategic industrial locations.	■ Planning ■ Regeneration
33	Completion of technical assessments to support funding applications to Thames Regional Flood and Coastal Committee programmes in order to fund potential identified projects (South Chingford Surface Water Flood Risk phase 2, 3 site flood mitigation (Larkswood, Memorial Park, Rolls Sports Ground), Whipp's Cross Hospital flood mitigation scheme, Town Hall Campus). *Links to Action 3 of the Parks and Open Spaces Strategy*	■ Lead Flood Engineer ■ Thames Regional Flood and Coastal Committee
34	Develop designs for enhancing the entrance to Lea Bridge Station to go alongside improvements to access and interpretation within the Lea Bridge strategic area. The new mini public plaza will incorporate urban greening with SuDS to create a welcoming gateway to the borough. Enhanced cycle storage and provisions will encourage sustainable transport choices, whilst connecting with the existing and proposed active travel routes.	■ Regeneration ■ Planning ■ Design Team ■ Transport for London ■ Greater Anglia ■ Network Rail
35	Explore opportunities to create a segregated cycle path along Temple Mill Lane, enhancing accessibility into the Olympic Park and the sports and recreation facilities it offers, including the Lee Valley Hockey and Tennis Centre.	■ Highways ■ Planning
36	Explore opportunities to extend Waltham Forest's Mini-Holland cycle network along Blackhorse Lane strategic development area and through Highams Hill.	■ Highways ■ Planning
37	Explore opportunities to extend Waltham Forest's Mini-Holland cycle network along Larkshall Road, using sections of cyclist segregation and increased priority. The route will connect neighbourhoods in the north of the borough with Highams Park Overground Station as well as significant green spaces including Pimp Hall Park and woodland at Chingford Hatch.	■ Highways ■ Planning
38	Review and update/refresh Green and Blue Infrastructure Strategy at intervals of no more than three years.	■ Planning (in consultation with relevant council officers/other stakeholders.)

Table 11.2: Waltham Forest strategic projects

Strategic projects	Summary	Key drivers / issues	Potential partners	Key GI themes	Outline budget estimate
A. Walthamstow Wetlands	Ongoing management and maintenance of key strategic GBI asset for the borough.	■ Internationally designated Ramsar Site. ■ Providing important recreational access to green and blue space nearby significant areas of growth in the south west of the borough. ■ A key active transport link and well connected to the National Cycle Route, Mini-Holland network (Forest Road to Wood Street) and Lee Valley Walk.	■ Thames Water ■ Environment Agency ■ London Borough of Haringey	■ Access and Connectivity ■ Biodiversity and Conservation ■ Blue Infrastructure ■ Open Space	■ £5.5 million
B. Meridian Water Link	Access, biodiversity and water environment improvements along the North Circular corridor adjacent to the Banbury Reservoir at the western borough boundary. Engagement with Enfield Council will ensure good access for pedestrians and cyclists between the two boroughs; connecting to the Meridian Water Regeneration Area in Enfield and existing north-south active travel routes towards Walthamstow Wetlands. Meridian Water Regeneration area is a major regeneration project within the London Borough of Enfield. The area adjoins Waltham Forest on the western boundary where the North Circular (A406) crosses the River Lee Navigation. The area includes a new railway station and will see the building of 10,000 homes and the creation of thousands of jobs. To the north of this area further regeneration and growth will be seen around Edmonton Leeside Employment and Industrial Estates. The vision for growth in the area is detailed within Edmonton Leeside Area Action Plan, which highlights the significant opportunities for addressing issues around connectivity, access to green space and delivering wider environmental improvements. Summary of interventions: ■ Provision of a safe pedestrian and cycle route as an alternative to the north circular; linking the Mini-Holland network (Leyton to Chingford Cycle Route) to the Lee Valley Walk at the River Lea. To include tree planting, signage and improvements to streetscape/highway and sense	■ The surrounding wards include areas that are within the 20% most deprived (IMD) areas in the country. ■ Areas of flood risk occur adjacent to Banbury Reservoir and upstream along the River Ching and its confluence with the River Lea. ■ Water quality in adjacent water courses is poor. Sections of the A406 are considered 'extremely polluted' and listed amongst London's roads at most risk of causing damage to river health.[82] ■ Open spaces generally are of low quality and areas with deficiency in access to open space are located to the north, east and south. ■ The North Circular and nearby waterbodies are considerable barriers, restricting sustainable travel and access to open space.	■ London Borough of Enfield ■ Environment Agency ■ Transport for London ■ Thames Water	■ Access and Connectivity ■ Biodiversity and Conservation ■ Blue Infrastructure ■ Open Space ■ Urban Greening	■ £2 million

[82] Thames21 (2019). Spatial Quantification of Road Runoff Pollution in Greater London. Available at: https://www.thames21.org.uk/wp-content/uploads/2019/08/Spatial-Quantification-of-Road-Runoff-in-Greater-London-20-08-19.pdf

	of safety at Folly Lane. Improved access to the pedestrian footbridge from Greenham Crescent north of the A406. ■ Improvements to Folly Lane Community Woodland including vegetation management, habitat works, seating and boundary treatments to improve sense of security. Connect Folly Lane with the existing footbridge over the A406 through provision of a surfaced route through Folly Lane Community Woodland. ■ Subject to scoping, implement a SuDS scheme to reduce surface water run-off from the A406 adjacent to the road and within Folly Lane Community Woodland to improve water quality in surrounding waterbodies. Seek opportunities to naturalise heavily modified sections of the River Ching and improve management of marginal river habitat.	■ Air quality along the adjacent section of the A406 is amongst the worst areas in the borough. ■ The area is included within North Circular Strategic Location and includes one of the borough's Strategic Industrial Locations.			
C. Connecting Leyton's Sports Hubs	Recent investment has significantly improved the sports offer at Leyton Cricket Ground. Improved cycling and walking connections between open spaces and provision of urban greening is now required to improve access. Summary of interventions: ■ Provide walking and cycling routes through the provision of signage and streetscape improvements between local open spaces including Leyton Cricket Ground, Jack Cornwell Park, Leyton Manor Park and Abbotts Park. ■ Provide a cycling and walking route between Leyton Cricket Ground and grass sports pitches at Hackney Marshes via Marsh Lane and Leyton Jubilee Park. Make improvements for transporting bicycles across the existing pedestrian footbridge over the railway sidings at Orient Way. ■ Make improvements for cyclists along the Mini-Holland network at High Street Leyton, better connecting Leyton Cricket Ground, local open spaces, transport hubs, Leyton Sports Centre and Baker's Arms District Centre. ■ Identify suitable sites and implement urban greening measures including tree planting and SuDS along cycling and walking routes and towards the District Centre at Bakers Arms.	■ There is a deficiency in access to several types of open spaces in the surrounding area. ■ The surrounding wards include areas that are within the 20% most deprived (IMD) areas in the country. ■ High Street Leyton and Hoe Street suffers from poor air quality in places. ■ The area is within and adjacent to Bakers Arms Strategic Location, which includes Baker's Arms District Centre. ■ High Road Leyton is included within the Mini-Holland Network (Leyton to Chingford Cycle Route). ■ There are areas that are at risk of surface water flooding (1 in 30 year event) to the north and east of Leyton Cricket Ground and Leyton Midland Road Station.	■ Transport for London ■ London Borough of Hackney ■ Lee Valley Regional Park Authority ■ National Rail	■ Access and Connectivity ■ Open Space ■ Urban Greening	■ £2.5 million
D. The Highams Park: heritage, open space and biodiversity improvements	There are opportunities to work with City of London Corporation (CoL) and other stakeholders to develop a strategy and improvement programme for the historic landscape at The Highams Park. The landscape is locally designated as a Park and Garden of Historical Interest. The original landscape is fragmented between different owners (City of London, London Borough of Waltham Forest and Woodford County High School), which has contributed to an overall loss of design and makes it difficult for visitors to appreciate the	■ The site is contiguous with Epping Forest SAC. ■ The remnants of the historic landscape are under multiple ownership and are not managed in a co-ordinated way.	■ City of London Corporation ■ Highams Park Community Interest Company	■ Access and Connectivity ■ Biodiversity and Conservations ■ Open Space	■ £750,000

	historic value of the site. The site is an important local park but key entrances are on relatively small residential roads and not well located in relation to public transport links. Summary of interventions: ■ Work with stakeholders to develop a management strategy and improvement programme for the remnants of the historic landscape. Such a strategy should have regard for City of London's Individual Site Plan for The Highams Park, Little Sale Wood and Oak Hill Wood. Develop the non-SAC section of the site as a key alternative recreational space to protect important ecological features of the SAC. ■ Appropriate tree planting, wildflower seeding within park. ■ Improvements to the quality of permissive paths and public rights of way, linking to Epping Forest Centenary Walk. Improve the connection to White House Woods providing signage and road crossing improvements at The Charter Road. ■ Entrance improvements to include directional signage from nearby bus stops on The Avenue to the north. Improve the Keynsham Avenue/Tamworth Avenue entrances to improve sense of safety, provision of signage. Wildlife friendly planting/wildflower planting at entrances. Liaise with City of London to determine the suitability of improving pedestrian access at the A1009. ■ Liaise with Redbridge Borough Council over the feasibility of creating a promoted heritage cycle/walking route between The Highams Park and Claybury Park (both Humphry Repton parkland commissions) via Roding Valley Park to divert some users away from Epping Forest SAC.	■ The site is within an area considered amongst the 20% most deprived (IMD) in the country. ■ Waltham Forest Open Space Strategy Action 39.		■ Cultural Heritage	
E. Protecting and enhancing Woodford New Road green corridor	Woodford New Road connects Whipps Cross Hospital roundabout with High Road/Woodford Green on the borough boundary. Poor air quality is having an adverse effect on the nearby SAC and SSSI, including the council owned and managed White House Woods. Summary of interventions: ■ Provision of segregated cycle lanes, connecting recent improvements at Whipps Cross Interchange to Woodford Green on the borough boundary. Junction improvements and traffic calming measures to promote a modal shift and improve air quality. Tree planting, wildflower seeding where possible and appropriate to create improved wildlife corridor. ■ Connect the route with the existing Mini-Holland scheme (Lea Bridge Road Cycle Route, Bloomsbury to Walthamstow Quietway and Forest Road to Wood Street).	■ Poor air quality in the area is having an adverse effect on important ecological assets at Epping Forest SAC. ■ The road passes by White House Woods (Epping Forest SSSI unit 203), which is owned and managed by Waltham Forest Council and is considered to be in unfavourable condition by Natural England primarily due to poor air quality.	■ Natural England ■ TFL ■ City of London Corporation	■ Access and Connectivity ■ Biodiversity and Conservation ■ Urban Greening	■ £8 million

	■ Improved habitat management at White House Woods.				
F. River Ching and South Chingford wetlands: flood alleviation, water quality and biodiversity	Implement a catchment-based approach to providing flood alleviation, improving water quality and reducing polluted water runoff through constructed wetlands in open spaces. The council has identified Memorial Park, Larkswood Playing Field and Rolls Sports Ground as key sites for flood alleviation schemes in South Chingford to protect properties from flooding events. Proposed schemes present significant opportunities to provide improved amenity and biodiversity benefits. Several other sites have been identified by partners, such as Thames 21, with potential for wetland construction and SuDS that would contribute to improved water quality within the River Ching. Summary of interventions: ■ Delivery of constructed wetland and flood storage at Larkswood Playing Field, Memorial Park and Rolls Sports Ground. Planting and access improvements to ensure maximum benefits for amenity, biodiversity and opportunities for education and engagement. ■ Subject to further scoping, implement multifunctional SuDS or wetland creation within open spaces identified as having the most benefit for improving water quality including The Highams Park, Parmiters and Cavendish Sports Ground, Hale End Sports Ground and River Ching Walkway. ■ Identify opportunities within other open spaces along the river corridor where river edge management can be improved and surface water runoff reduced through SuDS such as Brookfield Allotment Site, The Ching and Brookfield Meadow, Highams Park School Playing Field, Hollywood Way Allotment Site, Wickham Road Allotment Site, Peter May Sports Centre, Wadham Avenue Open Space, Walthamstow Stadium, Ching Walkway, Hoxton Manor Allotments, Blades & Salisbury Hall Playing Fields. ■ Work with the City of London Corporation, Environment Agency and other partners to progress proposals for Natural Flood Risk Management measures at Whitehall Plain, including Leaky Dams and development of wet woodland habitat.	■ Several properties in South Chingford are at risk from surface water flooding. ■ The River Ching suffers from poor water quality, which has been partly attributed to runoff from adjacent roads, such as the A406. ■ Waltham Forest Open Space Strategy Action 28.	■ Environment Agency ■ Thames 21 ■ Thames Regional Flood Defence and Coastal Committee ■ City of London Corporation ■ Ching Brook Action Group ■ Various sports clubs/ landowners/ managers ■ Allotment associations	■ Biodiversity and Conservation ■ Blue Infrastructure ■ Open Space ■ Urban Greening	■ £2 million
G. River Ching Local Blue Ribbon: Gateways and interpretation	A continuous riverside path should be created where possible along the River Ching. This could create sustainable transport opportunities for residents and visitors on foot and bike, providing opportunities for education and community involvement. Summary of interventions:	■ The River runs through several wards that are within the 20% most deprived (IMD) areas in the country. ■ The watercourse runs through several areas with deficiencies in good local access to open space.	■ Thames 21 ■ Environment Agency ■ City of London Corporation	■ Access and Connectivity ■ Cultural Heritage	■ £1.5 million

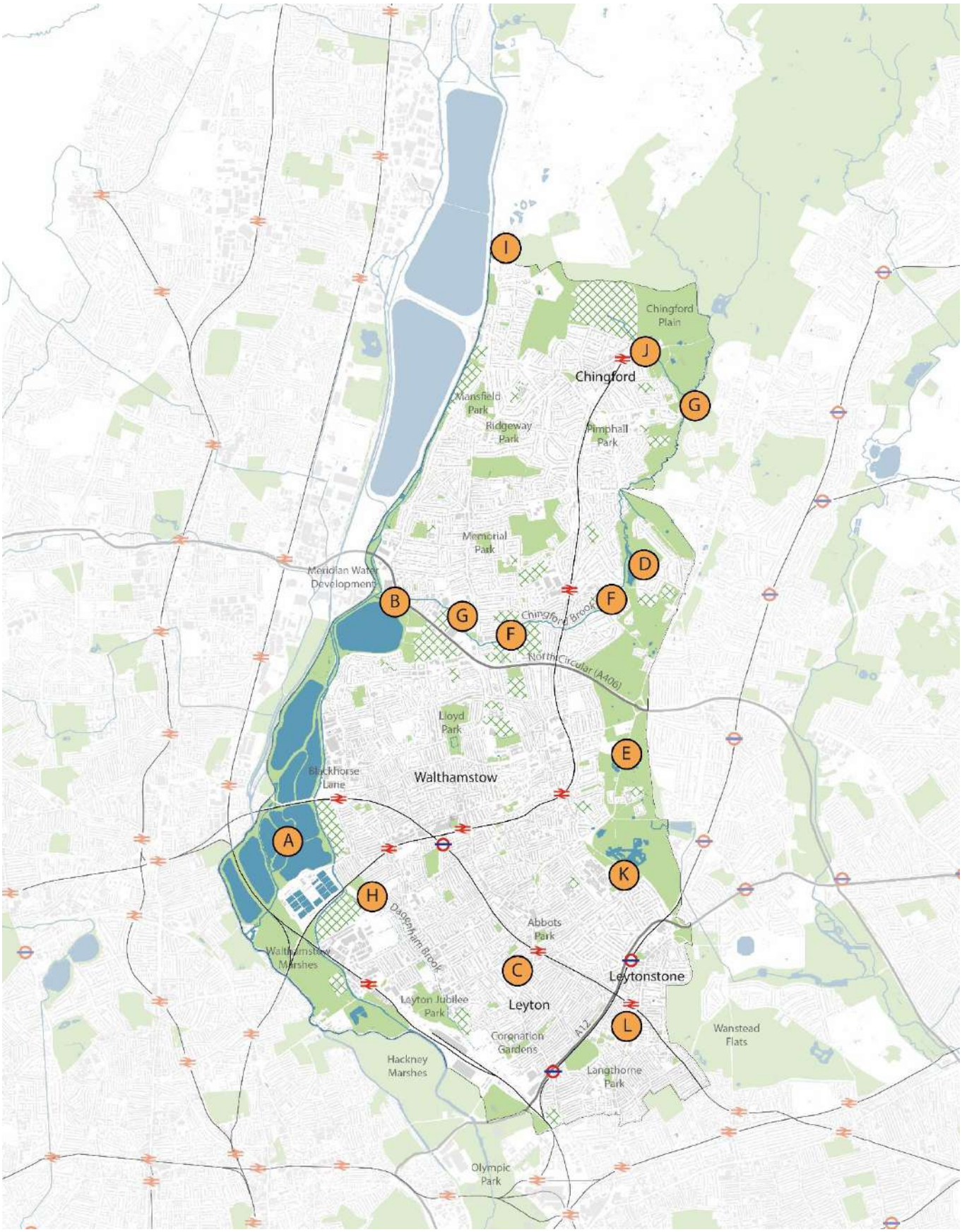
	■ Provision of 'Gateways' to the river including interpretation at several locations and signposting to these entrances (Gateway locations to be considered at Whitehall Plain / Whitehall Road, A112 and Morrisons car park). ■ Improvements to any path surfacing running nearby the river's edge, where required. ■ Vegetation management and rivers edge improvements where possible and appropriate.	■ The route connects several heritage assets.	■ Ching Brook Action Group		
H. Low Hall: access, interpretation & biodiversity improvements	Improved access to open space, interpretation and ecological management along the Dagenham Brook at Low Hall Conservation Area (Site of Local Importance to Nature Conservation - SLINC). The proposed development at Low Hall Depot also provides the opportunity to open up access and improve ecological quality of the Dagenham Brook and provide improved amenity as part of multifunctional flood storage. The area is connected to the Black Path; a historic route running between Columbia Road Flower Market and Walthamstow, passing Broadway Market and Smithfield. Today the path is used for walking and cycling and is part of the local cycle network. Improvements to the route as it runs along Markhouse Avenue and South Access Road would result in better connectivity for cyclists wishing to journey between Walthamstow and Orient Way, Lee Valley and Lea Bridge Road. Summary of interventions: ■ Ensure configuration of future development at the Low Hall Depot allows for pedestrian/cycle access along the Dagenham Brook. Built development shall be set back from the river's edge to allow for regrading/reprofiling and improved habitat quality. Design should incorporate additional open space, high quality play and retention and improvement of multifunctional flood storage area as a community amenity. ■ Creation of a new entrance adjacent to the Brook on South Access Road at Low Hall conservation area, creating a continuous path along the brook. Entrance/boundary treatments, entrance surfacing, signage/interpretation. Creation of a route parallel to the brook connecting to the existing woodland walk at the west of the site. ■ Develop and promote St James Park, Low Hall Conservation Area and Low Hall Sports Ground as a single site with consistent signage and improved access between the north and south.	■ The Dagenham Brook is periodically subject to wastewater overspill due to lack of capacity in the storage network and surface water runoff. ■ The area is at risk from Fluvial and surface water flooding events. ■ Surrounding areas are deficient in access to open space. ■ The project area is included within Low Hall Strategic Location.	■ Environment Agency ■ Conservation organisations ■ Local interest groups ■ Thames 21 ■ Thames Water	■ Access and Connectivity ■ Biodiversity and Conservation ■ Blue Infrastructure ■ Open Space ■ Cultural Heritage	■ £750,000

	■ Extend habitat areas adjacent to SLINC, north of the Sports Fields to include reprofiling rivers edge/swale creation, tree/scrub and wildflower planting for pollinators. ■ Provision of community food growing area/orchard within St James Park. ■ Create a route with directional signage linking the cycle filter at South Access Road/Argall Avenue with the rain garden at Essex Road/Salop Road. ■ Provision of directional signage from public transport links and the Mini-Holland Network (Leyton to Blackhorse Road Cycle Route) at Markhouse Road.				
I. Sewardstone Gateway to the Countryside	Develop Sewardstone Road as a gateway to the borough and out to the surrounding countryside whilst also providing better connections to transport hubs at Chingford and Ponders End in Enfield. Provide better local access to the countryside and open space in the local area to direct some footfall away from Epping Forest SAC. Summary of interventions: ■ Connect Sewardstone Rd/Kings Head Hill/Lea Valley Rd junction with the Mini-Holland Network (Leyton to Chingford Cycle Route) at the A110/A1069 junction – linking with routes such as the London Loop, Epping Forest Centenary Walk and the footpath along the River Lee navigation. Markings, signage and junction improvements. ■ Improve character, legibility and environmental quality of Sewardstone Rd/Kings Head Hill/Lea Valley Rd junction. Increase tree cover, provision of wildlife friendly planting and seating away from the roadside. Provide visitor information/map board showing recreational routes/open spaces/transport hubs. ■ Provide better access to Sewardstone Paddock and access into the Lee Valley. Raised table/pedestrian crossing nearby Hawkwood Crescent. Street tree planting adjacent to Sewardstone Road north of King Hill Junction. ■ Provide better legibility from the gateway area to Mansfield Park with provision of signage and increased street trees. ■ Improvement programme at Mansfield Park, including entrance improvements at Mansfield Hill and Valley Side.	■ Sewardstone Rd is identified as a Strategic Location in the local plan. The area surrounding the Sewardstone Rd/Kings Head Hill junction is designated as a neighbourhood centre. ■ The ecological features of nearby Epping Forest SAC are under increased pressure from recreation. ■ Waltham Forest Open Space Strategy Action 15.	■ Transport for London ■ Lee Valley Regional Park Authority ■ London Borough of Enfield	■ Access and Connectivity ■ Biodiversity and Conservation ■ Urban Greening	■ £3 million
J. North Chingford	Develop the area around Chingford Station as a key gateway to Epping Forest to reduce car journeys to the site and promote sustainable travel to the Forest. Access to the Forest via the visitor provides the opportunity to engage	■ Ecological features of Epping Forest SAC are being negatively affected by	■ Transport for London	■ Access and Connectivity	■ £1 million

Gateway to the Forest	residents in responsible and appropriate use of the site and increased awareness of the sensitive SAC habitats. Improve legibility around the station to promote access to other open spaces in the borough and non-SAC land. Summary of interventions: ■ Improve the character of the area around Chingford station with highway/streetscape improvements with seating, cycle parking and signage. Increase street tree cover and planting. ■ Intermittent / light segregation for cyclists along Station Road between Chingford Station and Chingford Plain. Traffic calming measures along ranger's road and provision of crossing points for cyclists and pedestrians to access visitor centre and other facilities. ■ Signage/board map and interpretation at Chingford Station indicating location and routes to other open spaces such as Pimp Hall Park and Nature Reserve. ■ Engagement with cycle hire outlet at Chingford Hub and City of London to identify opportunities help promote active recreation and sustainable travel from this location.	poor air quality and recreational pressure. ■ There are pockets of deficiency in access to open space nearby Chingford Station. ■ There are barriers to access / Connectivity along the railway line and busy roads.	■ City of London Corporation ■ Parks Friends Groups, e.g. Pimp Hall.	■ Biodiversity and Conservation	
K. Whipps Cross development	Landscape led development of Whipps Cross Hospital site. The site has been identified as a key opportunity area for flood detention as it lies along a major route for surface water runoff. The development must also improve public realm, permeability and legibility to and from the site to Wood Street, Bakers Arms and Leytonstone. The site is adjacent to an identified visitor 'hotspot' at Epping Forest SAC; Leyton Flats. The development of the site provides the opportunity to enhance existing woodland and open space within the area of change to provide high quality green infrastructure, access to nature and alternative recreational space for some users of Epping Forest. Summary of interventions: ■ Ensure layout/configuration of the development protects an area along the south/west boundary along Peterborough Road to accommodate flood storage/mitigation. Design of flood storage/mitigation to ensure maximum benefit for biodiversity and access for recreation for health and wellbeing. Continue engagement with Leyton Sixth Form College to scope out feasibility of delivering a complementary scheme that also provides educational benefits. Ensure appropriate consideration of the drainage hierarchy as part of site design and ensure appropriate incorporation of green roofs, walls, permeable features and other urban greening. ■ Retain and enhance woodland areas on site and woodland to the east to provide alternative open space provision for some users of Epping	■ The site is included with Whipps Cross Strategic Location. ■ Adjacent properties are at risk from surface water flooding events. ■ There is a deficiency in access to open space to the west of the site. ■ The site is adjacent to Leyton Flats, which has been identified as a visitor hotspot at Epping Forest SAC and is under considerable recreational pressure.	■ NHS ■ Natural England ■ Environment Agency	■ Access and Connectivity ■ Biodiversity and Conservation ■ Blue Infrastructure ■ Open Space ■ Urban Greening	■ £2 million

	Forest. To include entrance improvements, branding, access improvements, bins/benches. ■ Improve the south side of Whipps Cross Road for pedestrians and cycling. Improve road safety and provide crossings at the northern and eastern boundary along Whipps Cross Road and James Lane to facilitate access to surrounding open space/woodland. ■ Ensure an appropriate wayfinding strategy is included as part of site proposals to ensure good connectivity/legibility for all users to local amenities and local links for sustainable travel (e.g. Wood St for Wood Street Station, Mini-Holland Network at High Street Leyton). Develop marked cycleway to accessible footbridge at A12 to promote sustainable travel to Leytonstone Station via Colworth Road. Environmental enhancements to bridge crossing at east side of A12 to include tree planting.				
L. Urban greening opportunities along A12	Leytonstone, Grove Green, Cathall and Cann Hall wards at the very south of the borough are deficient in publicly accessible open space. This is compounded by pollution caused by the A12 which runs through the centre of these four wards. In addition, links between transport hubs could be improved for cyclists and pedestrians, in particular between Leytonstone High Road and Maryland station to the south. Crossrail 1 will run just south of the Waltham Forest boundary, within the borough of Newham. Improved pedestrian and cyclist links should also be explored in the south of the borough to take advantage of these strategic transport links. Summary of interventions: ■ Identify opportunities for urban greening through commissioning a detailed GI study; street tree and ornamental planting across the southern wards will help combat deficiency in green space, reduce air pollution and encourage sustainable transport. Particular opportunities include: a green link along Cann Hall Road / Crownfield Road to link the Olympic Park and Wanstead Heath; introducing traffic calming measures such as modal filters/ greening at existing modal filters. ■ Support local community groups to undertake community-led de-paving projects. ■ Create a segregated cycle lane between Leytonstone High Road and Maryland station in the south.	■ There is a deficiency in open space across these wards ■ Poor air quality as a result of the A12 crossing the south of the borough has an impact on living environment.. ■ Improved links to transport hubs in most deprived areas, in particular to Crossrail 1. ■ Climate change resilience – creating habitat stepping-stones across the south of the borough. ■ Helping to deliver pollinator strategy. ■ Community engagement	■ London Borough of Newham ■ Community groups ■ Transport for London ■ Groundwork ■ Greater London Authority	■ Access and Connectivity ■ Biodiversity and Conservation ■ Open Space ■ Urban Greening	■ £2.5 million

Figure 11.1: Priority Project Locations



Chapter 12

Embedding Green and Blue Infrastructure within Waltham Forest's Local Plan

Chapter 12
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12.1 There are several ways in which green and blue infrastructure may be delivered, some of which may occur 'independently' from the planning system. Organisations, such as charities and partnerships, may identify and pursue opportunities; communities may deliver small scale schemes with grant funding; or private landowners, individuals and businesses may carry out projects that contribute to the wider green and blue infrastructure network. However, the planning system provides the most opportunity to deliver green and blue infrastructure strategically, at a landscape scale, and in a co-ordinated way. In addition, the planning system often provides the primary mechanism for the protection of many assets.

12.2 The following chapter provides guidance on how green and blue infrastructure may best be considered and incorporated in Waltham Forest's Local Plan and how it can help to facilitate the delivery of a cohesive next work of green and blue spaces in the borough.

Green and Blue Infrastructure Policy in Waltham Forest's Local Plan

12.3 Green and blue infrastructure is recognised within National and Regional Planning policy as integral to the delivery of sustainable development and can form part of the overall mitigation that is required for additional built development and population increases. Local authorities have a duty to promote sustainable development under the Local Government Act 2000, which can be partly undertaken through planning policy and development management, and the principles set out within this strategy will help to achieve this aim.

12.4 To ensure green and blue infrastructure is appropriately and sufficiently incorporated as part of development in the borough, robust policies will need to be incorporated into the new Local Plan. In summary, the Local Plan will need to:

- Provide a clear definition of green and blue infrastructure and what assets makes up a network.
- Provide an overarching 'Vision' for the borough over the plan period.
- Identify the existing network and locations of key features and assets.

- Explain the functions and benefits that may be derived from high quality and value assets.
- Specify the types of new green and blue infrastructure that will be required and where.
- Set out the standards, quality and quality of green and blue infrastructure that will be expected and how this will be measured.

12.5 In order to ensure that improvements to the network can be secured through the Local Plan, appropriate wording, 'policy hooks' and reference to enforcement will need to be employed.

12.6 The current draft version of the borough's new Local Plan is a consultation document under Regulation 18 of the Town and Country Planning (Local Development) (England) Regulations 2012, which provides the opportunity for anyone to provide comments on the proposed policy approach.

12.7 Following the Regulation 18 consultation, there is an opportunity to amend policies, considering comments received, before the next stage in the process; the Regulation 19 (Proposed Submission) for consultation.

12.8 The borough's emerging Local Plan includes a draft policy on green infrastructure (Policy 84 Green Infrastructure and the Natural Environment) and there will be opportunities to update the policy prior to, and following, the Regulation 19 consultation on the Submission Draft.

A Vision for green and blue infrastructure in Waltham Forest

12.9 To avoid lack of clarity on the matter, the Local Plan should set out a definition of green and blue infrastructure. The glossary of the draft Local Plan provides the following definition:

> *'Green Infrastructure is a strategically planned and delivered network of high quality green spaces and other environmental features.'*

12.10 It is advisable that the definition and vision for green and blue infrastructure picks up on functions and outcomes rather than only identifying specifics assets that are considered to form part of the network, as these can be listed in more detail elsewhere within supporting information.

12.11 The NPPF provides the following definition, which highlights multi-functionality and benefits for local communities:

> *'A network of multi-functional green space, urban and rural, which is capable of delivering a wide range of environmental and quality of life benefits for local communities.'* [83]

12.12 This has been picked up to some extent within the strategic objective within chapter 17 of the draft Local Plan; 'Protecting and Enhancing the Environment':

> *'Enhance the Borough's natural environment and develop a multi-functional network of green and blue infrastructure to deliver benefits for all, including increased public access.'*

12.13 The definition for green and blue infrastructure within the borough's Local Plan would ideally be included alongside the key policy and highlight what makes green and blue infrastructure in Waltham Forest distinctive. Consideration should also be given to elevating the importance of green and blue infrastructure as being of equal importance as delivering other types of infrastructure. It is recommended that the vision included within **chapter four** of this report is incorporated within the new Local Plan.

An overarching, strategic policy for green and blue infrastructure

12.14 Consideration of green and blue infrastructure within the Local Plan has the potential to cut across several different policy areas. For instance, the multi-functional nature of green and blue infrastructure has implications regarding transport, employment and housing land allocation, sustainable design, health, climate change, biodiversity, geodiversity, infrastructure delivery, heritage, local distinctiveness, and flood management to name a few.

12.15 Whilst there is a need to ensure that green and blue infrastructure is 'mainstreamed' within the Local Plan and referenced within relevant policies. There is a risk that the concept of green and blue infrastructure is fragmented, and therefore given less weight, if not addressed within a clear, strategic overarching policy. A strategic policy should bring together the various functions and benefits which may be included within other policies.

12.16 The network should be clearly defined in the Local Plan and reference made to any key diagrams that show the network. This will highlight assets that need to be protected and considered as part of development proposals. Diagrams

[83] Ministry of Housing, Communities & Local Government (2019) National Planning Policy Framework

should be used to indicate strategic and local links within the borough.

12.17 The wording within the policy should cover the following, making refence to supporting information or other policies within the Local Plan as appropriate:

- How aspects of the network will be protected.
- How and when development will be required to enhance and provide new green infrastructure (i.e. within open space deficiency areas).
- Information on the types of features that may be required within new development (i.e. street trees, wildflower planting, SuDS, open space/ play space, green roofs/ walls).

Site specific policies and allocations

12.18 The draft Local Plan identifies 'Strategic Locations' which will be the primary locations for new homes, jobs and supporting infrastructure. Within Strategic Locations there will be 'Areas of Opportunity' consisting of small clusters of sites where a co-ordinated approach to site planning will be encouraged over piecemeal development. Further work to identify these areas is due to be undertaken and published separately from the Local Plan.

12.19 The draft Local Plan includes specific policies which set out the policy position for each Strategic Location, which refer to several aspects relating to green and blue infrastructure. These policies may need to be updated in future revisions to ensure key assets and opportunities within these areas are referenced and subsequently considered as further detail emerges on development within these locations.

Masterplans and development briefs

12.20 For some sites, or clusters of sites, it may be necessary to commission development briefs of masterplans, especially in the case of significant new housing development. In the case of clusters of sites, this may also be of benefit where several developers will be working up proposals in a discrete area and an overarching direction or 'vision' is required.

12.21 The preparation of a masterplan is the means by which the policy requirements for green and blue infrastructure in Waltham Forest can be translated into a detailed proposal, considering the specifics of the site and local needs. Masterplan proposals for significant sites also provides the means to 'measure' the proposals against the policies and any specific standards that may need to be upheld. As further detail emerges on sites within Areas of Opportunity and Growth, it will be possible to identify any areas and groups of sites that may benefit from a more co-ordinated approach.

Measurable Standards

12.22 The use of measurable standards for green and blue infrastructure will often provide the most robust way to ensure that development in the borough is meeting the policy requirements and the needs of the local community. New standards that relate to the delivery of specific types of infrastructure are published and updated frequently. Such standards may for instance relate to provision of SuDS, green roofs, or habitat management. The most relevant standards for implementing policy during new development will be standards which can be applied to a whole site, development or region in the borough.

Measurable standards have played a key role in developing the policy evidence base for some aspects of the green and blue network.

The open space standards set as part of the 2017 Open Space Needs Assessments provide a means to understand where there are deficiencies in quantity and accessibility of open space, and poor provision in terms the quality and value of open spaces.

Application of the standards that have been set not only highlights where enhancements will provide the most benefits but also the impact that specific proposals may have on open space provision and what mitigation measures may be required. As development comes forward in the borough, the standards can be used as a basis for measuring the effectiveness of proposals in addressing any deficiencies that have been identified.

12.23 Table 12.1 provides some examples of the types of measurable standards that may be employed in implementing green and infrastructure policy within Waltham Forest's Local Plan.

Table 12.1: Examples of measurable standards relating to green and blue infrastructure

Example standards	Notes/considerations
Urban Greening Factor (UGF) **Policy G5 Urban Greening** within the Draft New London Plan provides a planning policy tool that sets a standard for assessing the amount of urban greening that is included within a development proposal. **The policy states:** A. Major development proposals should contribute to the greening of London by including urban greening as a fundamental element of site and building design, and by incorporating measures such as high-quality landscaping (including trees), green roofs, green walls and nature-based sustainable drainage. B. Boroughs should develop an Urban Greening Factor (UGF) to identify the appropriate amount of urban greening required in new developments. The UGF should be based on the factors set out in Table 8.2, but tailored to local circumstances. In the interim, the Mayor recommends a target score of 0.4 for developments that are predominately residential, and a target score of 0.3 for predominately commercial development. The UGF is applied by assigning a factor of between 0 and 1 for various surface cover types, with sealed surfaces given 0 and the most natural cover (semi-natural vegetation e.g. woodland, flower rich grassland), 1. The Urban Greening Factor for a proposed development is calculated in the following way: (Factor A x Area) + (Factor B x Area) + (Factor C x Area) etc. divided by Total Site Area.	Waltham Forests Local Plan is required to be in general conformity with the London Plan. The borough Draft Plan states that: *'all developments that create one or more units will need to submit an ecology report which will use the mayor's UGF to demonstrate that the development meets or exceeds the Mayor of London's minimum UGF score of three'* (*sic*). The policy within the London Plan provides the opportunity for boroughs to develop an UGF that is tailored to local circumstances. In areas where there is little opportunity for additional vegetation at ground level, the UGF will promote the incorporation of green walls and green/brown roofs.
Biodiversity Net Gain The principle of Biodiversity Net Gain (BNG), seeks to ensure that development creates a net gain for biodiversity (around 10%) by providing off site habitat creation or improvements when necessary. The BNG principle is a hierarchal approach, negative impacts to biodiversity should: – In the first instance be avoided; – Then reduced, or mitigated; – Finally reduced through compensation or 'offsetting', only after avoidance and mitigation measures have been applied to proposals. Natural England has developed a Biodiversity Metric (2.0), which is a quantitative metric to calculate the biodiversity of a site before and after development. Where biodiversity loss is calculated, and consideration has been given to avoidance and mitigation measures, there may be opportunities to secure developer contributions for strategic habitat restoration/creation projects offsite.	Applying the principle of BNG is addressed within Waltham Forest's Draft Plan under Policy 86 'Biodiversity and Geodiversity'. Application of BNG is most relevant to the development of greenfield sites. The government's 25 Year Environment Plan aspires to strengthen requirements relating to the application of the BNG principle. The government has announced it will mandate BNG in the Environment Bill. BNG may be applied to secure contributions towards implementing principles set out in the Green and Blue Infrastructure Strategy.
Green Infrastructure accreditation schemes Several accreditation schemes have been developed that set standards for the quality of green infrastructure within developments. **Building with Nature** initiative is a green infrastructure accreditation scheme which was developed out of a collaboration with Gloucestershire Wildlife Trust	This approach is voluntary and is only likely to be taken up by developers who have a desire to go beyond the statutory minimum or planning requirements. Several accreditation schemes may be suitable to promote for large scale

Example standards	Notes/considerations
and the University of the West of England, and has been tested and refined in collaboration with Local authorities and private sector developers. Developers can apply to have schemes tested at any stage in the development process and planners can have policy documents accredited. The scheme provides a framework of standards against which proposals and developments can be tested, which are divided into several themes; Core Standards, Well-being, Water and Wildlife. Schemes can achieve one of three levels of accreditation.	developments that require comprehensive master planning or a more coordinated approach between stakeholders. Proposals which undergo a recognised accreditation process should be considered positively.

Chapter 13

Funding and Governance

Chapter 13
Funding and Governance

13.1 The following section outlines some of the options which may be pursued for funding and ongoing governance of green and blue infrastructure in the borough.

13.2 As is the case for many local authorities, the budgets for delivering services and capital projects has been reduced in recent years. There are numerous examples of 'alternative' funding and governance models for green and blue infrastructure (such as Community Development Trusts, Asset Transfers, Hypothecated Taxes), however not all of these will be suitable for Waltham Forest.

13.3 For landscape scale strategic projects, there will be a need to undertake significant scoping and viability assessments for 'alternative' delivery models, especially those that require engagement with a range of stakeholders, and there may not always be the capacity in-house to undertake such work. Funding for green and blue infrastructure enhancement within the borough will therefore likely be secured through developer contributions.

13.4 The implications of ongoing stewardship and maintenance green and blue infrastructure will need to be carefully considered to ensure ongoing benefits. The resource implications associated with green and blue infrastructure assets should fully assessed to ensure the sustainability of a feature and delivery of the intended functions. Assets should therefore be carefully designed to minimise revenue costs.

Securing funding through development

13.5 Implementation of green and blue infrastructure associated with development will often be achieved through planning conditions as part of the planning application process. The quantity, quality, location and functionality of green and blue infrastructure assets can be negotiated between developers and the Local Planning Authority, often with stakeholder consultation. With appropriate enforcement and monitoring, planning obligations can help ensure that the delivery of assets is in accordance with previously agreed and approved plans. Developers may also be required to provide evidence of arrangements for ongoing maintenance.

13.6 Delivery of green and blue infrastructure as part of planning conditions may also be combined with, or replaced by, a financial contribution by the developer. Developer contributions can potentially help fund off-site or on-site projects, strategic schemes requiring pooling of funds and

maintenance costs. There are two main mechanisms for securing developer contribution through the planning process; the Community Infrastructure Levy (CIL) and Section 106 (of the Town and Country Planning Act), and it is recommended that Waltham Forest continues to utilise both mechanisms for securing ongoing investment.

Section 106

13.7 Section 106 agreements (s106) are planning obligations which can be employed to *'make a development acceptable in planning terms which would otherwise not be acceptable.'* Agreements must be directly related to the development and *'fairly and reasonably related in scale and kind to the development'.*

13.8 There are several applications for s106 obligations such as restricting the development or use of land in a specified way or paying a financial contribution to the local authority as a lump sum, or periodically. Site specific mitigation that can be delivered through a financial contribution for green and blue infrastructure may be secured through s106.

Reforms to developer contributions

13.9 Restrictions have previously been placed on the use of s106 in that planning authorities could not 'pool' more than five developer contributions together for a single item or infrastructure project. The government has introduced regulations *(Community Infrastructure Levy (Amendment) (England) (No. 2) Regulations 2019)* that will change the way that developer contributions can be managed, as of September 2019. This has resulted in restrictions on pooling of contributions being lifted altogether.

13.10 The reforms will allow local authorities to seek s106 to fund infrastructure to support development regardless of the number of other developer contributions that have been made towards specific infrastructure projects. Crucially the changes will mean that local authorities will now be able to use both CIL and s106 to fund the same infrastructure project, which was previously not possible. The proposed changes open up additional options for funding more complex and geographically wider green and blue infrastructure through pooled contributions.

CIL

13.11 The Community Infrastructure Levy (CIL) was introduced through the Planning Act (2008) as a levy that local authorities in England can charge on new developments in their area; acting as a fund to help pay for supporting infrastructure, including green and blue infrastructure. Local authorities must spend the levy on infrastructure needed to support the development of their area, and they will decide what infrastructure is needed. As stated in National Planning Practice Guidance:

'The levy can be used to increase the capacity of existing infrastructure or to repair failing existing infrastructure, if that is necessary to support development.'

13.12 Management of CIL in London varies from the rest of England in that the Mayor of London also sets a levy in addition to local tier authorities. The Mayor of London and local authorities are therefore required to work closely together. Local authorities must take account of the Mayor of London's levy rates in setting local rates.

13.13 During 2019 Waltham Forest consulted on revisions to the level of CIL charged per square metre and published a draft Infrastructure Projects List and Delivery Schedule. Due to amendments made to the CIL regulations in 2019, local authorities will now be required to prepare infrastructure funding statements by 31st December 2020 in place of 'regulation 123' infrastructure lists, which set out a list of projects to be funded by CIL.

13.14 CIL will remain a key mechanism for delivering new green and blue infrastructure in the borough and strategic improvements to the existing network. As development proposals come forward in the borough it will be necessary to assess the resulting level of impact on specific assets so that enhancements, additional provision and strategic projects to support development can be included as part the delivery of other types of planned infrastructure.

Epping Forest SAC mitigation

13.15 Mitigation for development impacts on Epping Forest SAC will be by a combination of SANGs and SAMMs, both of which will require financing. An Interim Mitigation Strategy has been developed which includes outline costs for Strategic Access Management Measures. Waltham Forest Council will need to provide contributions towards any required mitigation measures in line with the level of development which comes forward. Financial contributions will also be required for SANGs provision and ongoing management,

13.16 Developer contributions will be sought as part of the planning process. However, it is up to the Council to determine the most appropriate mechanism to secure these funds as long as financial contributions and mitigation measures are delivered in line with the type and scale of development coming forward.

Other funding streams

Grant funding

13.17 Grant funding may be secured from a range of sources but will mainly be associated with implementing projects and schemes rather than ongoing maintenance.

13.18 The borough has benefited from major funding provided by the Heritage Lottery Fund. Several grant funding streams are also periodically available from the Mayor of London such as the 'Greener City Fund' and 'Good Growth Fund', and other bodies such as TFL.

13.19 Grant funding provides the best opportunities to deliver small scale community led projects and consideration should be given to providing support to community groups to help them understand what grants are available, criteria and application requirements.

Business levies

13.20 Business Improvement Districts (BIDs) have been set up across London, which comprise specific geographic areas and consortiums of businesses that make financial contributions to make improvements to the surrounding local area. The borough has one existing BID (Argall Business Improvement District) in Leyton.

13.21 While green and blue infrastructure is not often the primary focus of BIDs, urban greening and improvements to local open spaces may be included within their overall objectives. This type of funding arrangement will only benefit a relatively defined local area, although any funds would be unrestricted and could be used towards maintenance. A similar model may be promoted and supported in suitable areas, with green and blue infrastructure, and urban greening promoted as a focus for improvements.

Events and commercial activity in open spaces

13.22 The borough holds numerous events within open spaces and some of these provide opportunities to generate income. Where this occurs measures should be taken to ensure that income is re-invested into assets. Funds generated will be unrestricted and could be used for maintenance, although income generation is only likely to make a modest contribution to the funding of green and blue infrastructure and may only be of benefit to specific open spaces.

Governance

13.23 There are several options which may be explored for governance models which would be an alternative to ongoing Council management.

Community engagement

13.24 The Localism Act (2011) and Assets of Community Value Regulations (2012) provides opportunities for the transfer land from statutory bodies to communities through the Community Right to Bid. This approach relies on community engagement and interest in specific sites and would be driven by the community.

13.25 Options for Community Asset Transfer may also be explored and there are several mechanisms to undertake this. These arrangements are mostly by way of a long-term lease arrangement at a low 'peppercorn' rent. Alternative options for ongoing management and governance of green and blue infrastructure are already being implemented within the borough; the Friends of Hawkswood Nature Reserve have a service level agreement with the Council which gives them primary responsibility for the maintenance of Hawkswood Nature Reserve. This approach has required ongoing partnership working between community groups, the Council and relevant parks contractors.

Trusts

13.26 This approach comprises transferring assets (most often open spaces) into a trust which would manage sites into the future or transferring management responsibility of assets to social enterprises which may fund ongoing costs through commercial activity. The process of developing such models may be costly and complex and therefore the scope for this approach may be limited.

Partnership working

13.27 Delivery of green and blue infrastructure will almost always require a degree of partnership working and engagement with a range of stakeholders. A partnership approach will always be necessary when delivering landscape scale or strategic infrastructure and may provide a range of benefits such as the opportunity to pool resources and draw on specialist skills. In the case of statutory consultees and neighbouring authorities (under the Duty to Cooperate) this may be a legal duty. It will also be valuable to build capacity and engage with a range of other partners to undertake scoping and progress potential future projects.

Walthamstow Wetlands

Walthamstow Wetlands opened in 2017 and is London's largest urban wetland nature reserve. The site is internationally important for wildlife and is part of the Lee Valley SPA. The area comprises ten working reservoirs and has been improved with additional facilities such as a café and now allows better access and opportunities for walking, cycling and getting close to nature. The site is now a key destination for the borough and wider

region. The project is a good example of the importance of partnership working now managed jointly between Waltham Forest council, Thames Water and London Wildlife Trust.

13.28 Table 13.1 provides several examples of potential future opportunities for partnership working to deliver green and blue infrastructure projects in Waltham Forest.

Table 13.1: Example opportunities for partnership working

Partnership opportunity	Overview	
Epping Forest SAC Mitigation	Natural England have provided interim guidance to local authorities that are within the recreational 'Zone of Influence' that has been established for Epping Forest.[84] The Epping Forest Mitigation Strategy is being developed which will be a large-scale strategic project to reduce recreational pressure and air quality impacts on the SAC. A package of mitigation measures will be included in finalised the strategy which will be funded through developer contributions. Whilst some of these measures will be delivered within the boundaries of individual authorities, the strategic nature of the project will likely require partnership working across authority boundaries.	
	Potential partners • City of London Corporation • London Borough of Redbridge • Epping Forest District Council • Natural England	**Relevant themes** • Biodiversity and conservation • Open space • Access and connectivity • Urban greening
Ching and Pymmes Brook Re-Wilding	Environmental charity Thames 21 have undertaken a community modelling project in the London Boroughs of Waltham Forest and Enfield which identified sites for wetland and SuDS creation. The identified sites would have the potential to clean several polluted tributaries of the River Lea which run through the two boroughs, including the River Ching and the Pymmes Brook, through reducing surface water runoff and natural water filtration. Due to the nature of river corridors as linear landscape features, enhancement programmes benefit from a landscape scale approach. Delivering on some of the findings of this study would require partnership working between local authorities and other key partners.	
	Potential partners • Thames 21 • Environment Agency • London Borough of Enfield • Several community groups	**Relevant themes** • Biodiversity and conservation • Blue infrastructure
Meridian Water Regeneration Area & Edmonton Leeside	Meridian Water Regeneration area is a major regeneration project within the London Borough of Enfield. The area adjoins Waltham Forest on the western boundary where the North Circular (A406) crosses the River Lee Navigation. The area will see the building of 10,000 homes, the creation of thousands of jobs and a new railway station. To the north of this area further regeneration and growth will be seen around Edmonton Leeside Employment and Industrial Estates. The vision for growth in the area is detailed within Edmonton Leeside Area Action Plan, which highlights the significant opportunities for addressing issues around connectivity, access to green space and delivering wider environmental improvements. Proposals that are coming forward will provide several opportunities for Waltham Forest to develop projects relating to the borough's blue network, active travel, open space and biodiversity and these would need to link into the overall strategic plan for the area. Given the extent and nature of the development and infrastructure that will be delivered, and the sites proximity to	

[84] https://new.enfield.gov.uk/services/planning/area-action-plans/exd112-natural-england-interim-guidance-note-planning.pdf

Partnership opportunity	Overview	
	several key assets, any potential projects would require partnership working beyond neighbouring authorities.	
	Potential partners • Thames 21 • Environment Agency • London Borough of Enfield • TFL	**Relevant themes** • Biodiversity and conservation • Blue infrastructure
The Highams Park	The historic landscape at the Highams Park was originally part of 'Highams', a mid eighteenth-century manor house. The grounds of which were landscaped by Humphry Repton at the end of the eighteenth century. The ownership of what was the original designed landscape is now split between Waltham Forest council and the City of London Corporation (COL). Part of the site falls within Epping Forest SAC and a large lake forms a key landscape feature at the centre of the park. Continued and improved partnership working between the Council and COL will ensure management enhances and protects features of the designed landscape, works to mitigate against recreational pressure on the Epping Forest and provides an ongoing recreational resource. Ensuring coordinated management will also facilitate other improvements and protection measures such as water quality and ecological value of the lake.	
	Potential partners • City of London Corporation • Parks friends' groups	**Relevant themes** • Biodiversity and conservation • Blue infrastructure • Open space • Cultural heritage
Strategic development sites such as Whipps Cross Hospital site and Waltham Forest Town Hall.	For some larger proposals or clusters of sites that will be coming forward over the new Local Plan period there will be opportunities to work with partners to deliver ambitious and strategic green and blue infrastructure projects. As part of the consultation, the Environment Agency highlighted that the redevelopment of Waltham Forest Town Hall campus Hall will provide the opportunity implement flood alleviation measures and wetlands at the adjacent Chestnuts Field; similarly development at Whipps Cross Hospital provides opportunities for implementation of significant Sustainable Urban Drainage measures. The Whipps Cross Hospital site includes areas of woodland and measures could also be taken to improve access and provide an alternative site for some recreational visits to Epping Forest.	
	Potential partners • Environment Agency • City of London Corporation • NHS • Natural England	**Relevant themes** • Biodiversity and conservation • Urban greening Open space Cultural heritage

Chapter 14

Monitoring and Review

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Monitoring and Review

14.1 The implementation of the Green and Blue Infrastructure Strategy will need to be monitored to measure its success, as well as identifying any amendments which may be required due to changing circumstances and priorities.

14.2 During the preparation of this strategy, several emerging Council initiatives have been identified, including:

- Waltham Forest Open Space Strategy
- Waltham Forest Climate Change Commission
- Biodiversity Action Plan
- Pollinator Action Plan
- Community Food Growing Strategy
- Borough of Culture Legacy Plan

14.3 On their completion, the Green and Blue Infrastructure Strategy may need to be updated to reflect their main objectives and support their delivery. The cross-over between these documents needs to be acknowledged to deliver holistic and multifunctional interventions.

14.4 Going forward, the strategy may need to be reviewed annually to ensure it aligns with other core strategies within the borough.

14.5 While the strategy is set out to cover the next 10 years, it will be necessary to review and update the delivery of actions and projects during this period. It is recommended that this is undertaken at intervals of no more than three years. This review shall ideally comprise of the following steps:

- Dates actions and projects are completed
- Any required changes to the timescale of actions and projects
- A record of any measurable targets or outcomes
- Details of any major new actions that arise out of the existing list of actions and projects.

14.6 It is assumed that a re-draft of the full strategy will be carried out in 2029 to be adopted for 2030.

Appendices

Appendix A

Datasets Reviewed

Dataset	
Planning/ Spatial Designations	**Natural environment**
Metropolitan Open land	Waltham Forest Biodiversity Enhancement Sites
Green Belt Parcels	Waltham Forest Site of Importance for Nature Conservation
Town Centre Boundaries	Areas of Special Character
Opportunity Areas	Archaeological Priority Areas
Boundaries	Ancient Woodland Inventory
Analysis Areas	Site of Special Scientific Interest
Waltham Forest Boundary	Ramsar
District Boundary	Special Protection Area
Ward Boundary	Special Area of Conservation
Open Space	Normalized Difference Vegetation Index 0.05
Public Open Space Primary topology	Normalized Difference Vegetation Index 0.1
Public Open Space Secondary topology	Canopy
Play layers	National Forest Inventory
Sport layers	**Hydrology**
Public Open Space Quality assessment	Flood Storage Areas
Public Open Space Value Assessment	Areas Benefiting from Flood Defences
Public Open Space Accessibility	Flood Zone 3
Regional Park and Gardens layers	Flood Zone 2
Metropolitan Park and Gardens layers	Risk of Surface Water Flooding
District Park and Gardens layers	**Access and recreation**
District Natural and Semi Natural Green Space layers	National Cycle Network
Local Park and Gardens layers	National Trails
Small Local Park and Gardens layers	Regional Routes
Local Natural and Semi Natural Green Space layers	**Social statistics**
Small Local Natural and Semi Natural Green Space layers	Indices of Multiple Deprivation
Amenity Green Space layers	National Child Measurement Programme
Local Public Open Space	**Sustainability**
Small Local Public Open Space	Air Quality London Air
Open Spaces in surrounding authorities	
Historic environment	
Listed Building	
Scheduled Monument	
Registered Parks and Gardens	
Conservation Areas	

Appendix B

Biodiversity Action Plan